

# INDEX

## Volume AX-I

ITEM	PAGE
TWA Ex. 2 (Statement of Robert W. Rummel) ..	AX-1
TWA Ex. R-3 (Toolco-Convair Amended Agreement—Model 22, 6/4/56) .....	AX-63a
TWA Ex. R-5 (TWA-Toolco Purchase Agreement—May 9, 1960) .....	AX-64
TWA Ex. R-8(80) (FAA Registration Documents—B707-331, No. N771TW) .....	AX-73a
TWA Ex. R-8(81) (FAA Registration Documents—B707-331, No. N772TW) .....	AX-73k
TWA Ex. 3 (Affidavit of J. B. Connelly) .....	AX-74
TWA Ex. 4(b) (C. & C. Report—Comparative Profit Study) .....	AX-80
TWA Ex. 4(c)(1) (C. & C. Report—Financial Results from Reconstructed Jet Fleet) .....	AX-91
TWA Ex. 4(c)(4) (Exhibits B-J to C. & C. Report—Financial Results from Reconstructed Jet Fleet) .....	AX-167

## Volume AX-II

TWA Ex. 5(a) (Drexel Harriman Ripley, Inc. Report—Parts I & II) .....	AX-336
TWA Ex. 5(b) (Exhibits to Drexel Harriman Ripley, Inc. Report) .....	AX-430

ITEM	PAGE
TWA Ex. 7(b)(1) (Price Waterhouse Study— Volume One) .....	AX-452
TWA Ex. 7(b)(2) (Price Waterhouse Study— Volume Two) .....	AX-480
<b>Volume AX-III</b>	
TWA Ex. 10 (Letter—Boeing to TWA re 707 Negotiations—12/29/54) .....	AX-643a
TWA Ex. 12 (Toolco-Convair CV-990 Purchase Agreement—11/10/60) .....	AX-644
TWA Ex. 13 (Holliday Call Sheet—Feb. 20-27, 1961) .....	AX-655
TWA Ex. 14 (CV-990 Purchase Agreement— Amendment of 2/22/61) .....	AX-660
TWA Ex. 22 (Rummel Call Sheets) .....	AX-665
TWA Ex. 23 (Letter Agreement—Sale of Six Boeings to Pan American) .....	AX-729
TWA Ex. 39 (Affidavit of Joseph P. Ripley) ..	AX-732
TWA Ex. 42 (C. & C. Report—Revision of Pages 63, 64, 71 & 72) .....	AX-735
TWA Ex. 43 (C. & C. Report—Revision of Page 51) .....	AX-740
TWA Ex. 46 (Jet and Turboprop Aircraft of TWA and Principal Competitors—1958-66) ....	AX-742
TWA Ex. 47 (Boeing Aircraft Employed on Routes Formerly Served by B-720Bs) .....	AX-743



ITEM	PAGE
TWA Ex. 50 (Price Waterhouse Report—Summary of Application of Assumptions) .....	AX-744
TWA Ex. 72 (TWA Annual Report—1939) .....	AX-745
TWA Ex. 73 (TWA Annual Report—1940) .....	AX-752
TWA Ex. 74 (TWA Annual Report—1941) .....	AX-758
TWA Ex. 75 (TWA Annual Report—1942) .....	AX-760
TWA Ex. 76 (TWA Annual Report—1943) .....	AX-763
TWA Ex. 77 (TWA Annual Report—1944) .....	AX-766
TWA Ex. 78 (TWA Annual Report—1945) .....	AX-769
TWA Ex. 79 (TWA Annual Report—1946) .....	AX-773
TWA Ex. 80 (TWA Annual Report—1947) .....	AX-779
TWA Ex. 81 (TWA Annual Report—1948) .....	AX-783
TWA Ex. 82 (TWA Annual Report—1949) .....	AX-788
TWA Ex. 83 (TWA Annual Report—1950) .....	AX-792
TWA Ex. 84 (TWA Annual Report—1951) .....	AX-797
TWA Ex. 86 (TWA Annual Report—1953) .....	AX-800
TWA Ex. 87 (TWA Annual Report—1954) .....	AX-805
TWA Ex. 88 (TWA Annual Report—1955) .....	AX-814
TWA Ex. 89 (TWA Annual Report—1956) .....	AX-819
TWA Ex. 90 (TWA Annual Report—1957) .....	AX-822
TWA Ex. 91 (TWA Annual Report—1958) .....	AX-842
TWA Ex. 92 (TWA Annual Report—1959) .....	AX-854
TWA Ex. 93 (TWA Annual Report—1960) .....	AX-856

ITEM	PAGE
TWA Ex. 94 (TWA Annual Report—1961) .....	AX-862
TWA Ex. 96 (TWA Annual Report—1963) .....	AX-866
TWA Ex. 128 (Pan American Annual Report— 1959) .....	AX-868
TWA Ex. 132 (Pan American Annual Report— 1963) .....	AX-869
TWA Ex. 155 (AAL Annual Report—1958) .....	AX-870
TWA Ex. 158 (AAL Annual Report—1961) .....	AX-871
TWA Ex. 159 (AAL Annual Report—1962) .....	AX-873
TWA Ex. 184 (UAL Annual Report—1959) ....	AX-874
TWA Ex. 186 (UAL Annual Report—1961) ....	AX-875
TWA Ex. 187 (UAL Annual Report—1962) ....	AX-876
TWA Ex. 192 (TWA Prospectus, 5/25/61 & Sup- plement, 6/20/61) .....	AX-877
TWA Ex. 194 (TWA Prospectus—6/17/57) .....	AX-883
TWA Ex. 223 (Pan American Prospectus— 7/3/45—Supplement—7/24/45) .....	AX-889
TWA Ex. 249 (American Airlines Prospectus— 6/11/46—Supplement—6/24/46) .....	AX-891
TWA Ex. 257 (TWA-Toolco Lease Agreements —Boeing Jets) .....	AX-893
TWA Ex. 264 (Toolco-Lockheed Purchase Agreement—L-1449A—12/23/54) .....	AX-901
TWA Ex. 266 (Toolco-Lockheed Purchase Agreement—L-1049G—9/26/55) .....	AX-908

ITEM	PAGE
TWA Ex. 267A (Letter, TWA to Toolco—1957 Common Stock Offering) .....	AX-919
TWA Ex. 267B (Letter, TWA to N.Y. Trust Co.—1957 Common Stock Offering) .....	AX-921
TWA Ex. 271 (Letter, Toolco to SEC—1957 Common Stock Offering) .....	AX-923
TWA Ex. 275 (TWA Board Minutes—April 26, 1945) .....	AX-925
TWA Ex. 276 (TWA Finance Committee Min- utes—September 12, 1945) .....	AX-928
TWA Ex. 277 (Page from Banking Quotation Record) .....	AX-930
TWA Ex. 278 (TWA Board Minutes—November 8, 1946) .....	AX-931
TWA Ex. 279 (Special TWA Stockholders Meet- ing—December 23, 1946—Judges' Report) .....	AX-935
TWA Ex. 280A (Minutes—Adjourned Special TWA Stockholders Meeting—December 28, 1946) .....	AX-936
TWA Ex. 280B (Adjourned Special TWA Stock- holders Meeting—December 28, 1946—Judges' Report) .....	AX-940
TWA Ex. 281A (Minutes—Adjourned Special TWA Stockholders Meeting—December 31, 1946) .....	AX-941
TWA Ex. 281B (Adjourned Special TWA Stock- holders Meeting—December 31, 1946—Judges' Report) .....	AX-944

ITEM	PAGE
TWA Ex. 282 (Minutes & Judges' Report—Adjourned Special TWA Stockholders Meeting—January 6, 1947) .....	AX-945
TWA Ex. 283 (TWA Board Minutes—December 18, 1946) .....	AX-950
TWA Ex. 284 (TWA Board Minutes—December 27, 1946) .....	AX-956
TWA Ex. 285 (TWA Board Minutes—December 28, 1946) .....	AX-962
TWA Ex. 287 (TWA Board Minutes—January 9, 1947) .....	AX-966
TWA Ex. 288 (Minutes—Adjourned Special TWA Stockholders Meeting—January 13, 1947) .....	AX-974
TWA Ex. 290 (TWA Board Minutes—June 15, 1948) .....	AX-980
TWA Ex. 292 (TWA Proxy Statement—July 15, 1948) .....	AX-991
TWA Ex. 293 (TWA Prospectus—2/18/49 & Amendments—3/8/49) .....	AX-993
TWA Ex. 313 (Debt Outstanding & Available to TWA & Competitors—1961-63) .....	AX-1051
TWA Ex. 314 (Weighted Average Interest—TWA & Competitors—1960-63) .....	AX-1060
TWA Ex. 319 (Least Squares Analysis—S.H.E. Avg. Stage Length—B-331s) .....	AX-1065

ITEM	PAGE
TWA Ex. 320 (Least Squares Analysis—S.H.E. Avg. Stage Length—CV-880s) .....	AX-1066
TWA Ex. 321 (Least Squares Analysis—S.H.E. Avg. Stage Length—B-131s) .....	AX-1067
TWA Ex. 322 (Least Squares Analysis—S.H.E. Avg. Stage Length—B-131Bs) .....	AX-1068
TWA Ex. 328 (S.H.E.—Passengers Added/ Deleted—Reconstructed TWA) .....	AX-1069
TWA Ex. 331 (TWA Historical Load Factors— CV-880s—1962-1963) .....	AX-1071
TWA Ex. 336 (Comparison TWA Int'l vs. PAA- Atl.—1959) .....	AX-1072
TWA Ex. 345A (Price Waterhouse Comparison —C. & C. and S.H.E. (Revised)) .....	AX-1073
TWA Ex. 351 (1965 CAB Handbook of Airline Statistics) .....	AX-1107
TWA Ex. 355 (Comparative Profit Study— TWA with AAL & UAL) .....	AX-1108
TWA Ex. 356 (Comparative Profit Study— TWA with All Other Domestic Trunks) .....	AX-1110
TWA Ex. 399 (Comparison, TWA Actual Jet Load Factors vs. S.H.E. Marginal Passenger Mile Factors) .....	AX-1112
TWA Ex. 401 (TWA B-131 Load Factors— April-July 1959) .....	AX-1113
TWA Ex. 420 (Price Waterhouse Comparison— C. & C. (Revised) and S.H.E.) .....	AX-1114

ITEM	PAGE
TWA Ex. 423 (Late Evening Flights—TWA 1961-1963) .....	AX-1129
TWA Ex. 424 (Cargo v. Passenger Revenue—TWA Late Evening Flights) .....	AX-1133
TWA Ex. 426 (Comparison of Selected A/C Numbers from S.H.E. Appendix A) .....	AX-1134
TWA Ex. 431 (Profitability of TWA A/C by Month—Computer Print-out) .....	AX-1135
TWA Ex. 432 (Profitability of TWA A/C by Month—Chart) .....	AX-1145
TWA Ex. 435 (Regression Analysis—Random Numbers) .....	AX-1146
TWA Ex. 436A (Regression Analysis—Random Numbers) .....	AX-1154
TWA Ex. 436B (Regression Analysis—Random Numbers) .....	AX-1157
TWA Ex. 436C (Regression Analysis—Random Numbers) .....	AX-1160
TWA Ex. 440 (Graph Illustrating Testimony of Prof. Hare) .....	AX-1163
TWA Ex. 441 (Regression Experiment—3/23/68) .....	AX-1164
TWA Ex. 444 (C. & C. Tabulation—Additional TWA Domestic Seat-Miles) .....	AX-1177



## Volume AX-IV

ITEM	PAGE
DX4 (Toolco Order—30 P.&W. JT3C-4 Engines, 2/14/56) .....	AX-1178
DX5 (Letter—Toolco to P.&W. re Jet Engine Orders, 2/14/56) .....	AX-1181
DX6 (Toolco Order—90 Additional P.&W. JT4A-3 Engines, 2/15/56) .....	AX-1183
DX7 (Amendment—Toolco Order for 300 P.&W. Jet Engines, 9/7/56) .....	AX-1184
DX8 (Letter—P.&W. to Rummel re 300 Jet Engines, 9/7/56) .....	AX-1185
DX10 (Letter—Rummel to Collings re Boeing 707, 1/12/55) .....	AX-1186
DX11 (Notes of Convair Negotiations—March 24, 1955) .....	AX-1187
DX15 (Draft C.&C. Report—TWA Financial Forecast 1959-61) .....	AX-1192
DX19 (Page from <i>Aviation Week</i> , Jan. 10, 1955) .....	AX-1208
DX22 ( <i>American Aviation</i> , June 20, 1955, pages 21-23) .....	AX-1209
DX26 ( <i>American Aviation</i> , Sept. 12, 1955, pp. 84-85) .....	AX-1212
DX27 ( <i>American Aviation</i> , Oct. 10, 1955, p. 68) .....	AX-1214
DX28 (Pages from <i>American Aviation</i> , Oct. 24, 1955) .....	AX-1215

ITEM	PAGE
DX29 ( <i>Aviation Week</i> , Oct. 17, 1955, p. 7) .....	AX-1218
DX31 ( <i>American Aviation</i> , Nov. 7, 1955, pp. 23-25, 27-28) .....	AX-1219
DX40 (TWA Board Minutes—June 21, 1961) ....	AX-1224
DX43 (Excerpts from Deposition of Robert W. Rummel) .....	AX-1229
DX44 (Letter of Damon, Dec. 6, 1955) .....	AX-1369
DX45 (Letter—Leslie to Dietrich, Dec. 19, 1955)	AX-1378
DX46 (Letter—Dietrich to Ayers, Dec. 21, 1955)	AX-1382
DX47 (Boeing-Toolco Purchase Agreement— 8 B-131s, 1/10/56) .....	AX-1385
DX48 (Teletype—Boeing to Toolco re B707- 131s, 11/11/56) .....	AX-1390
DX51 (Boeing Offer of B707-320s to Toolco, 1/6/56) .....	AX-1391
DX53 (Transcript of Telephone Conversation— Rummel & Connelly, 12/20/57) .....	AX-1393
DX54 (TWA Board Minutes—June 26, 1959) ....	AX-1402
DX57 (The Huntington Report—1960) .....	AX-1410
DX62 (TWA Fleet Requirements 1961-70, dated 3/1/61) .....	AX-1420
DX63 (TWA Financial Forecast 1959-61, dated 5/15/59) .....	AX-1433
DX64 (Letter to Thomas, dated 5/6/59) .....	AX-1438

ITEM	PAGE
DX65 (TWA Staff Engineering Report re Jets & Turboprops—4/19/56) .....	AX-1440
DX66 (Toolco-Boeing Contracts—B707-131s, 3/2/56) .....	AX-1445
DX67 (Toolco-Boeing Contracts—B707-331s, 3/19/56) .....	AX-1479
DX68 (Toolco-Convair Contracts—CV-880s, 9/10/56) .....	AX-1505
DX71 (Rummel Memo re TWA Equipment Pro- gram, 3/15/61) .....	AX-1536
DX72 (Telegram—Bew to Rummel—2/27/61) ....	AX-1538
DX73 (Letter—Leslie to Holliday—3/20/61) ....	AX-1539
DX74 (Letter—Leslie to Holliday—4/3/61) ....	AX-1540
DX77 (Letters—Toolco to TWA re Financing Additional Jets, 6/9-10/61) .....	AX-1541
DX78 (Letter—TWA to Holliday re Financing Proposals, 6/16/61) .....	AX-1553
DX79 (Pan American-Boeing Purchase Agree- ment—B707-120s, 10/13/55) .....	AX-1558
DX81 (Pan American-Boeing Purchase Agree- ment—B707-321s, 12/19/55) .....	AX-1564
DX85 (Boeing-AAL Purchase Agreement— B707-123s, 3/1/56) .....	AX-1576
DX95 (Allen Letter Announcing Boeing Jet, Nov. 19, 1954) .....	AX-1584
DX96 (Boeing Offer to Sell Pan American 25 B-120s, 6/23/55) .....	AX-1588

ITEM	PAGE
DX97 (Boeing Offer to Sell American 15 B-120s, 6/24/55) .....	AX-1591
DX98 (Boeing Offer to Sell United 15 B-120s, 6/24/55) .....	AX-1594
DX101 (Boeing 707 Delivery Positions) .....	AX-1597

#### Volume AX-V

DX102 (Boeing Memorandum re 707 Over-Ocean Configuration, 11/2/55) .....	AX-1601
DX103 (Boeing Memorandum re TWA Delivery Positions, 12/23/55) .....	AX-1606
DX105 (Boeing Memorandum re Negotiations with TWA, 7/24/56) .....	AX-1608
DX106 (Letter—Rummel to Cook re Boeing Deliveries, 1/28/58) .....	AX-1611
DX107 (Letter—Rummel to Cook re Boeing Deliveries, 3/17/58) .....	AX-1615
DX108 (Letter—Price to Allen re Boeing Deliveries, 3/30/58) .....	AX-1618
DX109 (Letter—Toolco to Allen re Boeing Deliveries, 5/8/58) .....	AX-1621
DX116 (Rourke Memo to Rummel re CV-880 Deliveries, 1/15/60) .....	AX-1623
DX120 (TWA Memorandum re CV-880 Deliv- eries, 10/2/59) .....	AX-1624
DX122 (Bew Memorandum to Cannady re CV- 880 Deliveries, 12/18/59) .....	AX-1625

ITEM	PAGE
DX124 (Parinet Memorandum to Rourke re CV-880 Deliveries, 1/13/60) .....	AX-1627
DX125 (TWA Memorandum re CV-880 Deliveries, 1/22/60) .....	AX-1629
DX127 (Rummel Memorandum to Rourke re Integration of CV-880s, 2/8/60) .....	AX-1630
DX128 (Letter—Rourke to Digges re Specification Modifications, 4/7/60) .....	AX-1638
DX130 (Bew Wire to Rourke re Convair Delays, 5/27/60) .....	AX-1640
DX135 (Letter—Convair to Bew re CV-880 Delivery, 1/6/61) .....	AX-1641
DX137 (Telegram—Bew to Rummel re Convair Delays, 2/16/61) .....	AX-1643
DX139 (Letter—Convair to Bew re Convair Delays, 3/16/61) .....	AX-1644
DX142 (Letter—Convair to Rourke re CV-880 Deliveries, 7/11/61) .....	AX-1647
DX143 (Letter—Rourke to Convair re CV-880 Deliveries, 8/2/61) .....	AX-1650
DX146 (Letter—Convair to Toolco re Model 30 Delivery Positions, 5/6/60) .....	AX-1652
DX148 (Toolco—General Dynamics Letter Agreement re 6 Model 30s, 7/14/60) .....	AX-1654
DX152 (Toolco—General Dynamics Letter Agreement re Additional Model 30s, 9/6/60) .....	AX-1655

ITEM	PAGE
DX156 (Telegram—Beall to Allen, et al. re PAA Negotiations, 9/28/55) .....	AX-1657
DX168 (Boeing Memorandum re Conversations with Howard R. Hughes, 9/23/55) .....	AX-1658
DX169 (Boeing Memorandum re Conversation with Howard R. Hughes, 10/31/55) .....	AX-1660
DX170 (Telegram—Boeing to Toolco re B707- 331s, 7/21/59) .....	AX-1661
DX218 (C.&C. Letter to Leslie re TWA Finan- cial Forecast, March 13, 1959) .....	AX-1664
DX219 (TWA Financial Forecast 1958-1962, dated 12/1/58) .....	AX-1666
DX237 ( <i>Aviation Week &amp; Space Technology</i> , 11/13/61, pages 42-43) .....	AX-1671
DX239 ( <i>Airlift</i> , May 1962, p. 46) .....	AX-1673
DX254 (TWA Board Meeting, Aug. 16, 1961— Report of System General Manager) .....	AX-1674
DX255 (Statement of CAB Chairman Boyd, Jan. 29, 1960) .....	AX-1677
DX257 ( <i>Aviation Week</i> , 1/30/61, pp. 36-37) .....	AX-1681
DX258 (Report to Directors of TWA—Oct. 13, 1961) .....	AX-1683
DX259 (CAB Order of Investigation—Dec. 28, 1961) .....	AX-1694
DX260 (Letter—Tillinghast to CAB, Jan. 29, 1962) .....	AX-1703



ITEM	PAGE
DX262 (Revised Pages 70-73 of TWA Ex. 4(c)(1)) .....	AX-1708
DX270 (Report of Loeb, Rhoades & Co.) .....	AX-1712
DX271A (S.H.E. Report (Revised)—Volume One) .....	AX-1789
DX271B (S.H.E. Report (Revised)—Volume Two) .....	AX-1859
DX284 (TWA Prospectus—Nov. 20, 1952) .....	AX-1961
DX286 (TWA Board Minutes—Jan. 13, 1955) ....	AX-1967
DX287 (TWA Board Minutes—Dec. 13, 1955) ....	AX-1970
DX289 (TWA Board Minutes—April 26, 1956) ..	AX-1974
DX290 (Toolco-TWA Conditional Sale Contract—L-1049Gs, 6/6/56) .....	AX-1979

**Volume AX-VI**

DX292 (Toolco-TWA Conditional Sale Contract—L-1649As, 4/19/57) .....	AX-1995
DX321 id. (CAB Orders & Documents) .....	AX-2012
DX322 id. (CAB Orders & Documents) .....	AX-2191
DX323 id. (CAB Orders & Documents) .....	AX-2347

**Volume AX-VII**

DX334 (Correlation Coefficients—Substituted S.H.E. Table G-VII) .....	AX-2427
DX339 (B-120s Available to AAL, Actual vs. Reconstructed—1959) .....	AX-2428

ITEM	PAGE
DX341 (Domestic Carriers—Jets Assigned to Service, 1959-63) .....	AX-2429
DX342 (TWA's Share of Jets Assigned to Domestic Service, 1959-63) .....	AX-2430
DX348 (Revised Summary—Categories of Differences—Wemple vs. Simat) .....	AX-2431
DX358B id. (CAB Form 41 Reports—Northeast Airlines, 1957-1966) .....	AX-2452
DX358C id. (CAB Form 41 Reports—PAA, 1957-1966) .....	AX-2454
DX359A (Supplemental S.H.E. Report—Volume A) .....	AX-2458
DX364 id. (Excerpts from Deposition of Emmett O. Cocke) .....	AX-2843
DX367 (Combined Non-Stop Scheduled Frequencies Per Week—Aug. 1958-63) .....	AX-2851
DX368 (Combined Non-Stop Scheduled Frequencies Per Week—Aug. 1958-63) .....	AX-2853
DX371 (Summary—Categories of Differences—Wemple vs. Simat (Supplemental)) .....	AX-2856
DX379 (Domestic Jet Seat Miles—Wemple vs. Historical) .....	AX-2867

DX 102, page 1

(Boeing Memorandum re 707 Over-Ocean Configuration, 11/2/55)

November 2, 1955

File (707)

550-10-99

DX 102, in

To: W. E. Beall

cc: W. H. Allen G. C. Martin  
E. C. Hails M. L. Pennell  
J. O. Yeasting G. S. Schairer

Subject: 707 Over-Ocean Configuration and Proposal Letters to be Prepared for Foreign Airlines

To expand upon my report during the Operations Meeting of 1 November 1955, regarding the competitive aspects of our Model 707 when applied to overseas operation, I should like to state again that while there is a large sales potential for the 707 to overseas operations, our airplane is not competitive with the DC-8 - payload-range capability.

To be competitive and to do the overseas job properly our objective should be an airplane with a still air range of 4500 nautical miles plus fuel reserves for 350 nautical miles and one hour holding. The optimum airplane should be able to fly these distances, with reserves as noted, with tourist configuration space limit payload. The take-off field length to achieve this range objective should not exceed 9500 feet, sea level, hot day.

The optimum fuselage length for this configuration cannot be fully determined until economic analyses of varying lengths versus range capability can be completed. In any event, the passenger capacity must be sufficient to insure that the 707 seat mile costs are not greater than those of the DC-8.

During the past two months we have made commitments to four of the major European airlines and one Canadian airline, to supply them with price and delivery quotations on the 707. These companies and the dates on which we provided them this information are listed below:

#### 1. KLM - Royal Dutch Airlines

During his visit to Seattle on September 19 and 20 Fritz Esersen, on behalf of General Alor, requested 707 price and delivery quotations for six aircraft. He advised that we would transmit this information to General Alor within a few weeks.

Subsequently, in a letter from Mr. Allen to General Alor, dated September 23, 1955, the following statement was made:

550-10-99

"He are now reviewing costs and schedules and will, at Fritz Esencon's suggestion, present a new proposal within the next ten days."

No further communication with KLM has taken place in this regard since that date. In his letter to Mr. Allen of October 10th General Aler again indicated he desires this information and is expecting to receive a firm proposal from Boeing.

## 2. SAS - Scandinavian Airlines System

During the past week we have advised Per Norlin that we will forward to him a proposal letter covering delivery of five aircraft. He has requested that the delivery positions as quoted in this proposal be guaranteed to SAS for a period of ninety days.

In a letter from Mr. Throno-Holst to Mr. Allen dated October 24, 1955, the president of SAS requests the following proposal from Boeing to be submitted to SAS at least several days prior to the SAS Board of Directors meeting scheduled to take place in Stockholm on November 14, 1955:

" . . . . . contract proposal for six (6) 707's with an option for an additional four (4) to be delivered as soon as possible . . . . . should like to have alternative offers for planes with the J-57 and with the J-75 engines."

## 3. Air France

On October 23 and 24 the Chairman of the Board, President, two Deputy General Managers and the Manager of Air France, North American Operations, visited Boeing to study the 707. They were very favorably impressed and prior to their departure asked us to submit price and delivery quotations for quantities of six, ten and fourteen aircraft of the J-57 and J-75 configurations. They further requested this proposal be valid for a period of ninety days. We advised the Air France executives that we would submit a proposal to them at the earliest opportunity.

## 4. TCA

The engineer in charge of Jet Transport evaluations will be visiting Boeing on November 14th to further discuss details of the 707. Following this visit we should submit to TCA a proposal letter covering four aircraft with option for J-57, J-75 or Rolls Royce Conway engine installations.

550-10-99.

Page three

5. BOAC

We have a long standing commitment to provide price and delivery data to BOAC based on a configuration of the 707 incorporating Conway engines and with no cabin interior furnishings. Before we can submit such a proposal it will be necessary to obtain current information on the price and availability dates of the Conway engines from Rolls Royce.

It is of interest to note that other airlines such as KLM and SAS have also shown interest in taking delivery of jet transports without interior furnishings and completing this work in their own shops abroad. It is recommended that a suitable interior configuration of this type be defined for the 707 and a cost reduction for same estimated.

It will be recalled that 707 proposal letters were initially sent to KLM and SAS on July 26, 1955, a few days after similar proposals were mailed out to several domestic airlines. No proposal has ever been furnished to Air France or TCA.

We must expect that the foreign airlines will request delivery position quotations valid for a period of ninety days. By virtue of their nationalized or majority state owned status it simply takes these airlines longer to convince their directors and their governing state agencies of the necessity and choice of new equipment. Even with the United States domestic airlines in the case of PAA, UAL and American it has been from three to five months time from first proposal to signed contract.

The four European airlines noted above will probably be the first in that market area to purchase jet transports. As they are the largest of the European airlines they represent the best sales potential in terms of initial and follow-on quantities of aircraft amongst the foreign operators. It is probable that they will each commit themselves with either Boeing or Douglas within the next three months time. Top technical representatives of each of these airlines will be in the States during this month studying in detail both the 707 and the DC-8. A tabulation of the anticipated sales potential of the foreign airlines is attached to this memorandum for your review.

We are prepared to submit price and delivery proposals covering the JT3-C4 configuration of the 707 to the aforementioned foreign airlines and are proceeding to prepare drafts of proposals.



550-10-99

Page four

We are not in position, unfortunately, to submit proposals to them on the aircraft they are really interested in and which is competitive with that being offered by Douglas; namely, the long range configuration of the 707 with J44-3 engine installation.

It is imperative that we hasten the availability of technical data, price and delivery information on this latter configuration of the 707 in order to submit the proposals the foreign airlines have requested of us and forestall their purchase of DC-8's.

We urge that plans be formulated for a series of technical team contacts to be made at the headquarters of the major foreign airlines. These contacts should be instigated just as soon as the technical data on the long range J-75 version of the 707 is available.

*R. L. Ball*  
R. L. Ball



(Boeing Memorandum re 707 Over-Ocean Configuration, 11/2/55)

<u>AIRLINE</u>	<u>INITIAL</u>	<u>1965</u>	<u>AIRLINE</u>	<u>INITIAL</u>	<u>1965</u>
<u>EUROPE</u>			<u>AMERICA</u>		
AIR FRANCE	6 + 4 + 4	21	SOUTH AFRICAN AIRWAYS	3	4
BOAC	10	18	<u>SOUTH AMERICA</u>		
LUFTHANSA	4	10	PANAM DE BRASIL	4	5
IBERIA		3	AEROLINEAS ARGENTINAS	4	5
KLM	6	20	INAV	3	4
ITALYAN		7	<u>PACIFIC</u>		
SABENA	4	10	QANTAS	4	6
SAS	6 + 4	18	JAPAN AIRLINES	4	5
SWISSAIR	3	5	AIR INDIA	3	4
<u>CANADA</u>					
TRANS CANADA	4	10			
SUB TOTAL	43 + 8 + 4	122	SUB TOTAL	25	33

TOTAL INITIAL - 63 to 80

TOTAL 1965 - 155

(Boeing Memorandum re TWA Delivery Positions, 12/23/55)

CONFIDENTIAL

DX103

December 23, 1955

550-0-234

To: E. C. Halls

cc: W. H. Allen

W. B. Small

J. B. Connolly

Subject: Model 707 Delivery Schedules

In accordance with WPA's request, we are holding firm for TWA the following Model 707 delivery positions:

Model 707-320 Section

<u>Month</u>	<u>No. of Aircraft</u>
April 1959	1
May 1959	2
June 1959	2
July 1959	2
August 1959	1
<b>Total</b>	<b>8</b>

Model 707-320 Section

<u>Month</u>	<u>No. of Aircraft</u>
Nov. 1959	1
Dec. 1959	1
Jan. 1960	1
Feb. 1960	1
Mar. 1960	1
April 1960	1
May 1960	2
June 1960	1
July 1960	1
Aug. 1960	2
Sept. 1960	2
Oct. 1960	2
Nov. 1960	2
Dec. 1960	2
Jan. 1961	2
<b>Total</b>	<b>22</b>

(Boeing Memorandum re TWA Delivery Positions, 12/23/55)

Page 2  
 December 23, 1955  
 579-C-234

The following additional Model 707-320 series positions are available and will be quoted to Delta, Northwest, Eastern and Western Airlines:

Month	No. of Aircraft
June 1959	1
July 1959	1
Aug. 1959	2
Sept. 1959	2
Oct. 1959	3
Nov. 1959	1

Additional Model 707-320 series or Model 707-320 series aircraft will become available starting March 1960, at a rate of two per month.

Additional Model 707-320 series airplanes will become available as follows:

Month	No. of Aircraft
July 1960	2
Aug. 1960	2
Sept. 1960	1
Oct. 1960	3
Nov. 1960	2
Dec. 1960	3
Jan. 1961	4
Feb. 1961	5

*R. L. Bell*  
 R. L. Bell

CONFIDENTIAL

(Boeing Memorandum re Negotiations with TWA, 7/24/56)

DX 105  
PB  
File  
July 24, 1956

1-7000-7

To: W. E. Beall

cc: W. M. Allen  
R. L. Bell  
J. B. Connolly  
A. T. Curren  
D. W. Finlay  
M. L. Pennell  
J. O. YeastingSubject: Visit with R. W. Rummel and L. V. Leslie of TWA  
in Beverly Hills, July 19 and 20, 1956

Upon meeting Messrs. Rummel and Leslie on July 19, it became immediately apparent that their principal interest was that of discussing the procurement of additional 707-131 airplanes, but that, undoubtedly on instructions from Mr. Hughes, they were to limit the discussion to a relatively few additional early airplanes, preferably the 3 K1 airplanes previously discussed.

I outlined the history of the -131 negotiations and discussions as I knew it, and told them that it was our belief, in the light of previous discussions, as well as obligations to other customers and proposals to prospective customers, that we had made an attractive and favorable offer to TWA.

They outlined their reasons for believing that the conditional aspects of our offer were not favorable, as follows:

1. They are not ready to commit to a substantially larger number of 707-131's at this time.
2. They believe that they may require additional 707-131's, and that the size of their present 707 commitment should be given full consideration as compared to other customers in allocating K1 airplanes.
3. They believe that the K1 airplanes can be of substantially more benefit to their early operations than to the early operations of later customers.
4. They feel that the advantage of timing on the K1 airplanes is sufficient to them, even though they are not ready to commit for substantially larger purchases, to justify their immediate purchase of the 3 K1 airplanes in addition to the present orders.

W. B. (Boeing Memorandum re Negotiations with TWA, 7/24/56)

Page two

1-7000-7

I told them that we would consider their points carefully, and that I would talk to Mr. Allen directly as soon as possible, and that I would appreciate their indication concerning any alternative counter proposal which we might consider. I further stated that after such consideration, I would call both Rummel and Leslie, and that possibly Mr. Allen might want to call Hughes, but I did not commit him to make such a call.

After covering this subject, I was able then to talk to Rummel and Leslie about our thoughts on economics of jet design, and developed some interest in the subject, perhaps not to the extent of jeopardizing the Convair sale immediately, but at least encouraging Rummel to take another look, and interesting Leslie in the possibilities of a truly economic design. In this discussion it was also apparent that both Rummel and Leslie take a relatively conservative view of TWA's real growth potential, and this in turn keeps them in a cautious frame of mind about thinking of any substantially larger number of 707-131's at this time. I left with them one copy each of our economic study of Boeing vs Boeing-Convair fleets, with the understanding that they would study the data presented and give me their considered opinions as to the validity of our assumptions.

On the 24th, I had an opportunity to review my understanding of the above items, and in addition during the trip to the airport with Rummel had a chance to discuss with him the subject of DC-9 vs 707 design philosophy. It is apparent that Douglas has done a tremendous job of industry-wide brainwashing on their new "more efficient" wing design, and that we must develop an effective counter program both with present and prospective customers.

With reference to TWA's interest in additional airplanes, I have studied the various possibilities since talking to Rummel and Leslie, and would like to suggest the following:

1. I believe that due to conservative thinking on the part of TWA, we are not likely to sell them a large number of additional 707-131's in the immediate future.
2. They will buy 3 additional airplanes immediately if offered (131 airplanes), since this helps them inaugurate early jet service.
3. If they buy 3 additional airplanes, they will be better equipped for 1959 jet operations, and with 12 total -131's they will be further committed and less likely to think of turning to Convair for substantial quantities or for -131 replacements. (Incidentally their total would then be 30, which would make a better announcement.)
4. Although it is desirable from our point of view to sell additional airplanes to TWA immediately, a study of our proposed schedules will show that a sale of 3 now would not hurt our proposals to other customers. In fact if TWA purchases 3 now, we might consider improving other proposals with some of the airplanes not immediately desired by TWA.



W. D. Smith  
Page three

1-7000-7

5. Accordingly, I would recommend that we give serious consideration to the sale of 3 additional airplanes (at least one MX) to TWA without condition as to acceptance of additional certificated airplanes. I would recommend further, that to the extent these 3 airplanes are the same airplanes previously offered TWA as certificated airplanes (1 July, 1 August, 1 September) we make clear the dates on which additional airplanes are currently available, with an understanding that we will keep them advised as to any change in such availability by reason of modified proposals and/or sale to others.

I believe that the above procedure is in the best interest of our overall 707 program, and will possibly help our total sales by increasing the probability of added TWA sales, without adversely affecting our proposals to others. In addition, I believe that if we could firm up a program for the so-called "small" airplane in the near future, this in itself could resolve the TWA purchase of additional 707-120's.

  
Edward C. Wells

ECW:jcw



(Letter-Rummel to Cook re Boeing Deliveries, 1/28/58)

DX-106

January 23, 1958

Mr. Raymond Cook  
Andrews, Kurth, Campbell & Bradley  
2200 Gulf Building  
Houston 2, Texas

Dear Ray:

You will recall my recent advice that Mr. Hughes requested that I ask you and Harry West to review early Boeing jet deliveries with American Airlines re antitrust aspects.

I hope the following brief report will provide useful information.

- 1) Bruce Connelly and George Sandborn claim Boeing has an agreement with American Airlines which requires Boeing to deliver six Model 120 jet aircraft to American sixty days prior to delivering commercial jet aircraft to any other U. S. domestic operator. They also claim Boeing is obligated to maintain American's initial six aircraft sixty day delivery advantage throughout American's delivery period i.e., February 1959 through June 1960. Both men claim this agreement existed when the H. T. Company signed for its eight Model 131's.
- 2) Messrs. Connelly and Sandborn claimed to have an agreement with Pan Am which requires Boeing to deliver its first six jet transports to Pan Am sixty days prior to delivering any transports to any other commercial customer.
- 3) Messrs. Allen, Bell and Sandborn prior to contract signing represented that in the event Boeing could accelerate production and deliver aircraft prior to contract dates that it would maintain "relative delivery positions". This expression was taken as assurance in principle that while Boeing would not agree to specific delivery sequence that it would agree in principle to maintaining order of delivery positions then existing.

(Letter-Rummel to Cook re Boeing Deliveries, 1/28/58)

Mr. Raymond Cook

- 2 -

January 23, 1958

4) Sanborn claims, and Connolly reaffirms, that Boeing interpretation of "relative position" is that Boeing will alter relative deliveries when additional aircraft are ordered in order to meet its obligation to American Airlines. In other words, these gentlemen claim that each time the H. T. Company ordered additional aircraft (eight, nine, eleven, then fifteen), that Boeing was forced automatically to improve American's early delivery position and that in so doing maintained "relativity".

5) The H. T. Company contract permits Boeing to deliver twelve Model 120 aircraft (or variant thereof) prior to the month in which the H. T. Company receives its first airplane. Messrs. Sanborn and Connolly are interpreting this clause literally. Boeing is fabricating the first six aircraft to Pan Am's specifications and the next ten to American Airlines' specifications. The first airplane meeting the H. T. Company's specifications is the seventeenth of the 120 series and the eighteenth in sequence, the other airplane being a prototype 320.

6) Boeing has been extremely reluctant through the months to divulge delivery information for customers other than the H. T. Company. We have, however, obtained through undisclosed channels, Boeing's shop schedule, Exhibit A, attached. This is, however, subject to some further refinement and change.

7) We have also obtained Boeing's present target schedule for American, Pan Am and TWA:

	1958				1959											
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
Pan Am	1	2	1	2												
AA		1	2	3	2	2	2	2	2	2	2	1				
TWA					2	2	2	2	2	2	4	1				

Remaining American Airlines target schedules are believed to be the same as contract schedule shown immediately below.

8) Boeing's contract delivery schedule provides:

	1958				1959												1960				
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Pan Am	lnx0	1	2	1	2*																
AA	lnx0	0	2	2	2	2	3*	2	2	1	1	1	1	1	1	2	2	2	2	2	2
TWA	lnx					3	4	3	4*	1											

\* includes redelivery of one nx airplane.

Inspection of target and the contract schedules immediately reveal that TWA has lost position relative to American Airlines.

Mr. Raymond Cook

- 3 -

January 20, 1958

9) Boeing has offered six additional airplanes for early delivery. Sandborn states that if the H. T. Company buys additional airplanes for delivery during the American delivery period, American's schedule might require advancement to comply with Boeing's basic obligations as reported in items (1) and (2) of this letter.

10) Boeing has advised that it is currently manufacturing ten additional commercial jets of the 120 series on speculation with deliveries to follow within the H. T. Company delivery period. These ten are international airplanes. If the H. T. Company should purchase these airplanes, American's deliveries would be advanced "appropriately".

11) The following is Boeing's current certification schedule:

	<u>Type of Certificate</u>	<u>Airworthiness</u>
PAA	Mid-July 1958	Mid-September 1958
AA	early September 1958	Mid-November 1958
TWA	December 1958	Mid-January 1959

12) American Airlines' fare investigation data for CAB use dated November 7 included the following information:

last quarter 1958	4 aircraft
first quarter 1959	13 aircraft
second quarter 1959	6 aircraft
third quarter 1959	7 aircraft

13) Messrs. Sandborn and Connelly intimated that if the H. T. Company could agree to use its early airplanes in international operations that perhaps American Airlines would go along with earlier deliveries to TWA. I personally doubt that American would agree to this.

Our objective must be to obtain the Boeing jets at the earliest conceivable date. It appears that Boeing must be persuaded that either its moral obligation to H. T. Company and TWA overrides its written agreement with American (unlikely) or it must be demonstrated that the written agreement with American cannot be viewed as legally valid. Perhaps your and Harry West's study of the situation will reveal other plausible courses to pursue.

The very fact that we have had recent discussions with Sandborn and Connelly seems to me to be a compelling reason for early action since if nothing occurs Boeing can claim at time of delivery that we were fairly forewarned.

AX-1614

DX 106, page 4

(Letter-Rummel to Cook re Boeing Deliveries, 1/28/58)

Mr. Raymond Cook

- 4 -

January 23, 1958

I, of course, would be very glad to discuss this situation with you and Harry at your convenience if you wish.

I will wait to hear from you before taking further action and in the meantime, will report any pertinent additional developments from the Boeing front.

Sincerely,



R. W. Rummel  
Vice President - Engineering

cc: Mr. Harry West



DX 107, page 1  
(Letter-Rummel to Cook re Boeing Deliveries, 3/17/58)

AX-1615

DX-107

*Colum*

March 17, 1958

Mr. Raymond A. Cook  
Andrews, Kurth, Campbell & Bradley  
22nd Floor Gulf Building  
Houston, Texas

Subject: Delivery of Model 707-131 Aircraft

Reference: 1. TWA letter dated 1/28/58, R. W. Rummel to R. A. Cook.  
2. BAC letter 6-1100-41-529 dated 3/12/58, J. B. Connolly to R. W. Rummel (copy attached).

Dear Ray:

Reference (2) outlines Boeing's current target dates for the delivery of Model 707-131 aircraft.

It appears that my talks or something has done some good after all since the target dates are substantially better than outlined in Item 7 of reference (1). However, I do not know whether American's have been moved forward similarly. I am attempting to find out and will provide this information if possible.

Very truly yours,

*R. W. Rummel*  
R. W. Rummel  
Vice President - Engineering

RWR:JC

Attachment

cc: Mr. C. H. Price  
Mr. L. K. Schwartz

WW

PRICE

DX 107, page 2  
(Letter-Rummel to Cook re Boeing Deliveries, 3/17/58)

**BOEING AIRPLANE CORPORATION**  
**TRANSPORT DIVISION**  
**RENTON, WASHINGTON**

6-2100-12-529

Mr. R. W. Rummel  
16 Richards Road  
Kansas City, Missouri

Through: Mr. Edwin Zak  
Resident Representative

Subject: Delivery of Model 707-131 Aircraft

Dear Bob:

Very early in the Model 707 program we recognized the mutual benefits to be derived by our customers and Boeing from early delivery of these aircraft, and we established target airplane delivery schedules providing for deliveries in advance of the contract requirements. During the past several months we have constantly monitored this program to determine our capability against these target schedules. We believe we are sufficiently along in our knowledge of the status of the program to provide you with the following data with respect to our target delivery schedule:

**MODEL 707-131 AIRPLANE DELIVERIES PER MONTH**  
**TARGET SCHEDULE**

December, 1956	1X
January, 1959	3
February, 1959	3
March, 1959	1
April, 1959	2
May, 1959	1
June, 1959	2
July, 1959	2

\* Includes re-delivery of NX airplanes.

The foregoing target schedule is provided so you may be kept abreast of the developments in the Model 707 program. Although we cannot assure you that we shall deliver your aircraft in accordance therewith, the progress to date indicates we should be able to meet these dates barring unforeseen difficulties.

In the event we are able to meet the target schedule shown in this letter, you have our assurance that we can provide spare parts

EEC  
CJ.P.W.C  
REC  
NRP



DX 107, page 3  
(Letter-Rummel to Cook re Boeing Deliveries, 3/17/58)

Page Two

Support for Boeing proprietary items and the services, training and data provided by the contract.

The foregoing information is provided to enable you to plan for earliest potential deliveries of Model 707 Aircraft. The information contained in this letter of course does not change the contract delivery schedule set forth in the Purchase Agreement. Should conditions arise which alter the situation as described above we will advise you.

Very truly yours

BOEING AIRPLANE COMPANY  
Transport Division

J. B. Connolly  
Vice President - General Manager

(Letter-Price to Allen re Boeing Deliveries, 3/30/58)

C  
O  
P  
Y

HUGHES TOOL COMPANY DX-108

EXECUTIVE OFFICES  
TWENTY-SECOND FLOOR GULF BUILDING

HOUSTON 2, TEXAS

March 30th, 1958



Re: Contract No. 7

Boeing Airplane Company  
P.O. Box No. 3707  
Seattle, Washington

Attention: Mr. William K. Allen, President

Gentlemen:

Mr. Connolly's letter to Mr. Fumel (3-1100-41-529) reported a new target schedule of deliveries to Hughes Tool Company. The letter does not include target schedules for other customers; but on the basis of facts indirectly reported to Hughes (and partly from the Hughes schedule itself), it appears that Boeing's combined target schedule seriously discriminates against Hughes and TWA and in favor of TWA's competitors.

From the commencement of negotiations with Boeing Hughes consistently declared that protection against priority or preferential deliveries to competitive customers was an essential condition of any purchase contract, and just as consistently Boeing reaffirmed its adherence to such a policy. When Hughes requested specific contract language relating to sequence of manufacture and delivery, Boeing replied that as a matter of uniform policy Boeing had refused all of its customers any delivery priorities beyond those inherent in the contracted stipulation of delivery months. This declared policy of non-discrimination would prohibit preferential treatment either as to accelerated deliveries in advance of the stipulated delivery months or as to relative deliveries within one month. That such representations and assurances from Boeing were oral rather than written does not impair their effectiveness or importance, since Boeing realized that Hughes was executing the contract, and its several supplements, in good faith reliance upon them.

Page 2 -

Boeing Airplane Company  
March 30th, 1958

It is unthinkable that Boeing would deliberately or carelessly misrepresent facts on any matters under formal discussion. It is equally unthinkable that Boeing would cause or permit any discrimination in violation of its solemn declarations of impartiality. It is to be hoped, therefore, that the indirect report given to Hughes was erroneous or that any discriminations were unintended and will promptly be corrected.

Independently of competitive deliveries, however, the new target schedule is irreconcilable with the essence of Boeing's obligation in that it also fails to accelerate delivery of the M1 airplanes. It was a basic understanding that one airplane would be delivered to Hughes several months in advance of TWA's inauguration of scheduled service. Without an acceleration of the M1 delivery, a timely inauguration will be seriously handicapped. Furthermore, with the capabilities demonstrated by the accelerated program Boeing's "best efforts" as required by the contract should produce a substantially earlier certificated delivery of the airplane than is now scheduled.

Unless immediately rectified, Boeing's threatened discrimination in deliveries and its breaches of basic obligations will expose Hughes and TWA to ruinous losses. Responsibility for these losses must be borne by Boeing, both under principles of contract law and under statutory prohibitions against discrimination and restraint of trade.

Despite the seriousness of these developments and the urgency of a solution, Hughes is willing to discuss them, and for that purpose this letter is being delivered by Mr. Raymond A. Cook, attorney for the Company. Pending a satisfactory explanation and revision of these matters, the progress payments are being withheld.

Yours very truly,

HUGHES TOOL COMPANY

By: W. C. Z. P. Jr.  
Vice President

(Letter-Price to Allen re Boeing Deliveries, 3/30/58)

Page 3 -

Boeing Airplane Company  
March 30th, 1953  
-----

cc: Mr. R.W. Dunkel  
Trans World Airlines, Inc.  
10 Richards Road  
Kansas City, Missouri

Mr. Harry West  
Trans World Airlines, Inc.  
20 West 9th Road  
Kansas City, Missouri

Mr. Raymond A. Cook  
Andrews, Murth, Campbell & Bradley  
2200 Gulf Building  
Houston, Texas

W

PRICE



(Letter-Toolco to Allen re Boeing Deliveries, 5/8/58)

## HUGHES TOOL COMPANY

EXECUTIVE OFFICES

TWENTY-SECOND FLOOR GULF BUILDING

HOUSTON 2, TEXAS

May 8, 1958

DX-109

Re: Your File 6-1100-2-316

Mr. William W. Allen, President  
Boeing Airplane Company  
Seattle, Washington

Dear Mr. Allen:

We acknowledge your letter of April 29, 1958, wherein you stated your beliefs that you had completely explained your position with respect to the delivery issue and that, to the satisfaction of the Hughes representatives, Hughes has been treated by Boeing "with complete fairness and equity under its contracts". It is true that since our letter to you dated March 30, 1958, additional facts and points of view have been developed in discussions between representatives of the two companies; but it is questionable that your position has been "completely explained" and we still can not agree that Hughes has been treated "with complete fairness and equity under its contracts". We do appreciate the cooperative manner in which you have been willing to discuss the problem.

Prior to the recent meetings in Seattle it appeared that Boeing contemplated deliveries on a basis resulting in some degree of discrimination, but Boeing's exact intentions with respect to deliveries were not then known. Boeing has now stated that its deliveries of Model 707-120 airplanes will be made to Hughes in such a sequence, relative to American Air Lines, that at the end of each month American will not have a certificated airplane advantage of more than five airplanes and that during each month this advantage to American will fluctuate, never more than eight and never less than two. That assurance, though limiting the degree of discrimination, does not restore the parity in deliveries to which Hughes is rightfully entitled.

If Boeing's originally stated policy still prevailed, (i.e., that Boeing would not for any customer make a commitment concerning relative sequence of delivery, except by specifying in the contract particular months of delivery) and if the entire Model 120 program were accelerated equally with Boeing's improved production capacity,

(Letter-Toolco to Allen re Boeing Deliveries, 5/8/58)

Mr. William M. Allen

Page 2

May 3, 1958

American's advantage would of necessity be reduced through the period of TWA's deliveries. That result is immediately apparent from comparing the two contracts (even without giving weight to the less formal assurances, which Boeing made to Mr. Hughes personally, that TWA could commence service as soon as American). Whether or not it was ever reasonable or "fair" for Boeing to have offered to the inferior delivery positions contemporaneous with American's, that offer was accepted and is no longer open to review. No doubt American has contended that as an earlier customer it is entitled to preferential deliveries. Such contention is groundless on either legal or moral grounds, however, unless with American Boeing deviated from its announced policy against sequence commitments. Despite the resulting pressures and embarrassments, Boeing must now accept the responsibility of enforcing equitably the delivery provisions of all of its contracts.

Boeing's mitigating assurances, which establish a maximum disparity at the end of each month, could be more encouraging if Boeing's ship schedule were established on a basis that would at least create the maximum probability of an equitable division of deliveries within each month. As you know, an engineering conference was held in Seattle on April 17 for the purpose of clarifying this phase of the problem. Unfortunately, in the short time available and under Boeing's self-imposed security restrictions many of the material facts were not brought to light, and those that were brought to light did not adequately answer our questions.

It is to be hoped that the current conversations which Mr. Hughes is having both with you and with Mr. Seall will soon produce a resolution of these issues. In the meanwhile we trust that you will agree with the propriety, if not the necessity, of our withholding the installment payments.

Yours very truly,

CHP:bjc

cc: Mr. Raymond A. Cook  
Mr. R. W. Farnal



CONFIDENTIAL

AX-1623

DX 116

(Rourke Memo to Rummel re CV-880 Deliveries, 1/15/60)

110 7111

TO: Mr. R. W. Rummel  
ADDRESS: 350 Madison Avenue  
CITY: New York, N. Y.

FROM: R. K. Rourke  
ADDRESS: 10 Richards Road  
CITY: Kansas City, Mo.  
DATE: January 15, 1960

COPIES  
Mr. H. B. Fannon

SUBJECT: Convair 880 Delivery and Certification

Reference: TWA letter dated 1-13-60, H. R. Parnet to R. K. Rourke, attached.

DX 716

Confirming my telephone conversation the evening of January 11, I am attaching a summary of the status of completion of the first 880 aircraft that TWA will likely receive. Note that we estimate (assuming no week-end work on the part of Convair) that the first airplane will not deliver until March 2. The second airplane would be approximately ten days later. Delay of delivery until this time would make it impossible to start service by April 1 or 15, even assuming the airplanes were certified by then. Moreover, all evidence that we can obtain without directly discussing this with Convair indicates that the airplane will not certify until May 1, and it is very possible that the certification will be after that date.

Unless something is done to cause Convair to expedite this program by overtime work, I cannot recommend that TWA continue to plan on the premise with respect to Convair operations as now included in the Jet Plans & Premises Manual.

There may be reasons why it is desirable to continue on this basis, but I think that we are doing the various departments making plans on these dates a disservice.

  
R. K. Rourke

RRR:JC  
Attachment

**TWA****AND****PREMISES**

Chapter: J

Title: Aircraft Availability

Subtitle: 1.3.1 Convair 880  
Delivery

Date: October 2, 1959

re the Delivery Dates of the Convair 880?

of t ed	TWA Number	On or By Mo/Day/Yr	Total Delivered For Month	Accumulated Total	Assignment	
					Available for Training, Pre- service Mods. or Other Use	Available for Schedules
	8802	12/10/59	1	1	1	0
	8804	1/25/60	1	2	2	0
	8805	2/9/60	1	3	3	0
	8806	3/15/60		4		
	8807	3/24/60	2	5		
	8808	4/11/60	1	6		
	8809	5/3/60		7		
	8810	5/17/60		8		
	8811	5/30/60	3	9		
	8812	6/10/60		10		
	8813	6/16/60		11		
	8814	6/24/60	3	12		
	8815	7/5/60		13		
	8816	7/27/60	2	14		
	8817	8/2/60		15		
	8818	8/18/60		16		
	8819	8/24/60	3	17		
	8801	9/5/60		18		
	8803	9/21/60	2	19		
	8820	10/4/60	1	20		

Origin: Planning &amp; Research

52767 (Bew Memorandum to Cannady re CV-880 Deliveries, 12/18/59)

DX-122

8805-54  
COPIES

Mr. R. K. Rourke  
Mr. N. R. Perrot

SUBJECT: Bi-weekly Convair 440 Progress Report

The status of early deliveries has again fluctuated and I will relate an unofficial Convair estimate of delivery months:

One in January, (a remote possibility)  
Two in February,  
None in March,  
Five in April,  
Four in May,  
Five in June,  
Four in July,  
Five in August, and  
Four in September.

	070	101	102
FILE			
FILE			
FILE			

cc: RKP  
 Jy NCP

After being secured since 9 October 1959, aircraft manufacturing No. 5 was released to production on 9 December 1959. The plans appear to be to put this No. 5 aircraft into the C and N (communications and navigation) portion of the F4A Certification testing, however, no announcement regarding the aircraft has been made by N.T.Co. or Convair.

Our next two aircraft, No. 6 and No. 8, are no longer being readied for F and R (Function and Reliability) testing and TWA flight training as planned. They are now roped off and secured by H.T.Co. personnel. Production stopped on these two aircraft as of 1530, 5 December 1959.

Aircraft manufacturing No. 9, which will be our first complete aircraft for acceptance is out of the hanger and could conceivably be a late January or early February delivery.

Peri passu aircraft manufacturing No. 10 has rolled off the assembly line sporting a very bright Kelly green acrylic protective coat on all exterior surfaces. No word has been received as to how this aircraft should be marked on the exterior, however, it has the H.T.Co.—TWA interior.

The production line continues to move on schedule, however work is not being completed at proper stations due to late arrival of sub-contracted items and engineering changes. This, of course, results in incomplete aircraft rolling off the end of the line even though the airframe appears to be on schedule. I would estimate that Convair has consumed all of the two-month "hedge-factor" which they had built-in to original schedules and are now very hard pressed to meet the first quarter or even the above revised delivery sequence.

/A (Bew Memorandum to Cannady re CV-880 Deliveries, 12/18/59)

8808-514  
COPIES

TO: Mr. E. E. Cannady

FROM: J. William Bew

SUB:

ADDRESS:

CITY:

CITY:

DATE: 18 December 1959

Attached is a production line progress chart for your information  
and distribution.

*J. William Bew*  
J. William Bew.  
Mr. Aircraft Acceptance  
Convair

JWB:js

Attachments (6)

N XH 1537



(Parmer Memorandum to Rourke re CV-880 Deliveries, 1/13/60)

DX 141

TO: R. K. Rourke  
ADDRESS: 205 Airport  
CITY: Kansas City

FROM: R. R. Parmer  
ADDRESS: 205 Airport  
CITY: Kansas City  
DATE: January 13, 1960

COPIES

SUBJECT: Status of Completion of Early 880 Aircraft

As a result of our discussions, I requested Jimmy Gordon to review the delivery schedule for the first two Convair 880 aircraft and give me his estimate of when these aircraft might be delivered. Thus, we have a comparison of Convair's estimate vs. our own.

After reviewing the situation, Jimmy (with Bill Bow present) advised the following:

No estimate that the No. 9 aircraft, which Convair states is scheduled for delivery on February 12, 1960, will not be ready for delivery until approximately March 2. The No. 10 airplane for which Convair also estimates a February delivery is approximately 10 working days behind the No. 9 airplane, and consequently Jimmy estimates #10 airplane delivery for approximately March 17.

The reasons for the above estimates are as follows: The #9 airplane is outside the hangar undergoing completion and Convair final inspection. This will not be completed until approximately February 1. Following this the airplane will be weighed. This will take one day. Next comes electronic checkout for which Convair estimates ten working days. Then comes Convair pre-flight of two days followed by Convair production flying which we estimate will take five days. Finally we estimate our final inspection and packing shoots along with TWA acceptance flights will take four days. This makes a total of 22 working days from February 1 which brings the estimate to March 2 as previously indicated.

It should be pointed out that this estimate is based on a five-day work week with no overtime being expended. It is our understanding that Convair does not intend to use overtime or to work weekends to complete these aircraft.

The above estimate is based on known factors. Additional unknowns which could alter the above estimates include the following items which have not yet been fully resolved:

1. Cabin door interchangeability check.
2. Eight equipment replacement demonstrations.
3. Cabin seats.
4. Technical problems unknown at the present time.
5. Revision of electrical wiring above the cargo compartment (FAA advised they will not grant a provisional certificate for carrying cargo unless this wiring is protected).

In addition to the above we have had an incident on #12 production airplane wherein this airplane began shedding paint after a recent rainstorm in San Diego. A chunk of paint inches high and 2 feet long fell off the airplane and there are blisters the size of man's fist all over the fuselage. Of course, this airplane will require a complete repainting. Other aircraft which have been painted previously did not experience any



PWW (Parmer Memorandum to Rourke re CV-880 Deliveries, 1/13/60)

TO: R. K. Rourke  
ADDRESS:  
CITY:

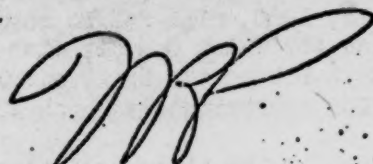
FROM: N. R. Parmer  
ADDRESS:  
CITY:  
DATE: January 13, 1960

COPIES

SUBJECT:

- Page 2 -

of the symptoms. Early investigation by Convair engineers indicate the problem on the #12 airplane is due to poor cleaning of the aircraft skin plus the possibility of oil or water in the air lines of the paint pressure system as a result of improper filtering. We have established a high priority in correcting this problem and assure that it is not a problem basic to the Convair paint system. I will advise you further after additional information becomes available.



Norman R. Parmer

100-100000

DX 125

AX-1629

(TWA Memorandum re CV-880 Deliveries, 1/22/60)

TO: Mr. R. W. Rummel  
ADDRESS: 330 Madison Ave.  
CITY: New York City

FROM: R. K. Rourke  
ADDRESS: 10 Richards Road  
CITY: Kansas City, Mo.  
DATE: January 22, 1960

COPIES

M. B. Fannon

SUBJECT: Convair 880 Delivery and Certification

References: (1) Letter, Rourke to Rummel, dated 1/15/60  
(2) Letter, Rummel to Rourke, dated 1/19/60

DX 125 (678)  
654  
6587

1002

In your letter of January 19 you requested that we advise whether or not we believe that Convair could complete 880 aircraft in accordance with TWA's planning premises if they went to work industriously, including weekends. Our review of the state of completion of the first and second aircraft indicates that neither of these aircraft could be delivered in accordance with Page 1.3.1 of the Jet Plans & Premises Manual which calls for delivery of one airplane on January 31 and the second airplane on February 19, 1960. We believe that if Convair worked seven days a week on these aircraft to their maximum capability that the earliest the first airplane could be accepted and delivered is February 22. On this basis the second airplane could possibly be delivered by the last day of February. Obviously for such aircraft to be delivered "complete" we would have to accept items like seats in less than final configuration. As you may recall, Convair presently has three airplane sets of seats on hand, none of which are considered satisfactory by our representatives. In addition to this we would expect that there would be a number of "exceptions letters" required to permit acceptance of aircraft with recognized areas of deficiencies.

Presently we have no reason to change our opinion stated in our January 15 letter with respect to the 880 certification dates.

The above appeared to us to be the most optimistic that we can be at this time with respect to the 880 situation.

*R. K. Rourke*  
R. K. Rourke

RKR:FK

(Rummel Memorandum to Rourke re Intergration of CV-880s, 2/8/60)

MR. C. S. THOMAS

R. W. RUMMEL

NEW YORK

NEW YORK

FEBRUARY 8, 1960

cns000  
MESSRS:  
E. O. COCKE  
A. V. LESLIE

## CONVAIR 880 INTEGRATION INTO TWA SERVICE

IT APPEARS TO ME THAT TWA SHOULD PROCEED TO MAKE READY FOR USE OF CONVAIR 880 AIRCRAFT NOW ON ORDER FROM CONVAIR BY THE HUGHES TOOL COMPANY. HOWEVER, I FOUND NO POSITIVE CONFIRMATIVE INFORMATION DURING MY WEST COAST TRIP LAST WEEK CONCERNING TWA'S RECEIPT OF AIRCRAFT FROM THE HUGHES TOOL COMPANY. NOR DID I FIND ANY POSITIVE CONFIRMATIVE INFORMATION THAT TWA WOULD NOT RECEIVE 880 AIRCRAFT.

THE BIG QUESTION REQUIRING RESOLUTION TO PERMIT REVISING CURRENT PLANNING PREMISES IS -- HOW MANY 880'S WHEN? THIS, ALONG WITH OTHER FACTS, IS DISCUSSED IN THE ATTACHMENTS TO THIS LETTER. I RECOMMEND THAT I BE GIVEN A DIRECTIVE CONCERNING HOW MANY 880'S TWA SHOULD PLAN ON AND WHETHER WE SHOULD PLAN ON CONTINUOUS SEQUENCE OR PART-PASSU, OR SOME OTHER DELIVERY ORDER. WITH THIS MAJOR QUESTION RESOLVED, JET PLANNING COULD ATTEMPT TO MAKE UP LOST TIME TO THE MAXIMUM EXTENT.

AS YOU KNOW, PROVISIONING, FLIGHT TRAINING, MAINTENANCE TRAINING, AND JET ENGINE OVERHAUL REMAIN CRITICAL ITEMS. IF CONTINUOUS SEQUENCE DELIVERY IS SELECTED, ALL OF THESE ITEMS BECOME MORE CRITICAL AND CONTROLLING.

I RECOMMEND THAT TWA'S JET PLANNING ACTIVITY UNDERTAKE FULL SCALE REVIEW OF 880 PLANS ON AN URGENT BASIS, BEGINNING THE MOMENT THE DELIVERY PREMISES IS RESOLVED. OF COURSE, IMPLEMENTATION WILL REQUIRE RELEASE OF PROVISIONING AND OTHER APPROPRIATE JETTED AND COMMITMENT ACTIVITIES.

ATTACHED ARE NEW RECOMMENDED PLANNING AND RESEARCH PROPOSALS FOR MODEL 880 AND OTHER PERTINENT DATA.

R. - Rummel

(Rummel Memorandum to Rourke re Intergration of CV-880s, 2/8/60)

RWR  
2/8/1960PLANNING AND RESEARCH  
TRANS WORLD AIRLINES, INC.  
300 MADISON AVENUE  
NEW YORK 17, NEW YORK

VUS:III

RECOMMENDED PLANNING PREMISES  
MODEL 880

## A. DELIVERY OF NC TRAINING AIRCRAFT:

1. AIRPLANE #9
2. AIRPLANE #10

MARCH 10  
MARCH 18.

## B. FAA NC CERTIFICATION

MAY 15.

C. NUMBER OF HUGHES TOOL COMPANY AIRCRAFT  
IN FULL NC CERTIFICATION CONFORMANCE BY  
MAY 15 -(IN THIS CONNECTION THE NUMBER OF  
THREE AIRCRAFT TO BE USED BY TWA HAS  
NOT BEEN DEFINITELY ESTABLISHED).

6

## D. DELIVERY SCHEDULE:

IT IS RECOMMENDED ON A PURELY SPECULATIVE BASIS THAT TWA PLAN ON  
THE USE OF THE FIRST 20 AIRCRAFT RATHER THAN THE PART-PASSU DISTRIBUTION  
NOW CONTAINED IN THE JET PLANS AND PREMISES MANUAL, WHICH SHOULD BE REVISED.  
HOWEVER, SINCE FIRM KNOWLEDGE OF RECEIPT OF THE FIRST 20 AIRCRAFT IS NOT  
AVAILABLE, TWA SHOULD BE PREPARED TO RETURN TO THE PART-PASSU ARRANGEMENT  
IF THIS SHOULD PROVE TO BE THE CASE.

ON THE OTHER HAND, CONSIDERABLE SPECULATION EXISTS CONCERNING THE POSSIBILITY  
THAT TWA WILL BE OFFERED MORE THAN 20 COMBINE 880'S FOR ITS USE AND THAT TWA  
WOULD BE ACCEPABLE TO USE MORE THAN THE 20 AIRCRAFT. IF TWA IS TO ULTIMATELY  
RECEIVE MORE THAN 20 COMBINE 880'S DURING 1960, IT WILL BE FAR BETTER TO  
PLAN IMMEDIATELY ON THE USE OF THE ADDITIONAL AIRCRAFT RATHER THAN WAIT.

THE EXACT EFFECT ON TWA SCHEDULES, AND REVENUE AND COST FORECASTS OF  
CHANGING FROM CURRENT JET IMPLEMENTATIONS PLANS TO EITHER ACCELERATED OR  
MORE DELIVERIES OR BOTH CAN BEST BE DETERMINED THROUGH REVIEW BY THE JET  
PLANNING GROUPS AND THE JET PLANNING COMMITTEE.

E. START OF TWA SERVICE:  
(PLAN FOR MAY 15).

MAY 20.



DX 127, page 3  
(Rummel Memorandum to Rourke re Intergration of CV-880s, 2/8/60)

RWR  
2/8/1960

PLANNING AND RESEARCH  
TRANS WORLD AIRLINES, INC.  
330 MADISON AVENUE  
NEW YORK 17, NEW YORK

A. DELIVERY AND CERTIFICATION OF NP AIRCRAFT FOR FLIGHT AND MAINTENANCE TRAINING PURPOSES.

CURRENT CONVAIR PLANNING CALLS FOR DELIVERY OF TWO NP AIRCRAFT TO HUGHES TOOL COMPANY DURING FEBRUARY. CONVAIR ESTIMATES OFFICIALLY ONE FEBRUARY 25 AND THE SECOND, UNOFFICIALLY, MARCH 2.

CONVAIR ADVISES IT HAS RECEIVED THE NP CERTIFICATE FROM THE FAA FOR THE HUGHES TOOL COMPANY CONFIGURATION AND THAT CONFORMITY ONLY IS REQUIRED TO CERTIFICATE.

PERSONAL INSPECTION OF AIRPLANES #9 AND #10, THE TWO SCHEDULED FOR FEBRUARY DELIVERY, PLUS FURTHER DETAILED REVIEW WITH MESSRS. ROURKE, BEN AND GORDON INDICATES FEBRUARY DELIVERIES ARE HIGHLY IMPROBABLE, EVEN WITH EXTENSIVE CONVAIR OVERTIME.

IN THE LIGHT OF CURRENT KNOWLEDGE, IT APPEARS REASONABLE TO ANTICIPATE DELIVERY OF TWO NP TRAINING AIRCRAFT TO HUGHES TOOL COMPANY AS FOLLOWS:

AIRPLANE #9  
AIRPLANE #10

MARCH 10  
MARCH 18.

I RECOMMEND TWA USE THESE DATES AS NEW TWA PLANNING PREMISES. HOWEVER, I HAVE NOT BEEN ABLE TO VERIFY THAT THESE TWO AIRCRAFT WILL IN FACT BE DELIVERED TO EITHER HUGHES TOOL COMPANY OR TWA.



(Rummel Memorandum to Rourke re Intergration of CV-880s, 2/8/60)

209800

RWR  
2/8/1960PLANNING AND RESEARCH  
TRANS WORLD AIRLINES, INC.  
380 MADISON AVENUE  
NEW YORK 17, NEW YORKB. WHY HAS THE CONVAIR 880 AIRPLANE PROGRAM BEEN DELAYED?

THE CONVAIR 880 PROGRAM HAS BEEN DELAYED PRIMARILY BECAUSE OF:

1. VENDOR PARTS SHORTAGES,
2. CORRECTIONS DEVELOPED AND INSTATED DURING CONVAIR FLIGHT TEST PROGRAM,
3. CONVAIR'S DECISION TO MINIMIZE OVERTIME UNTIL CERTIFICATION IS AT HAND.

SETTING ASIDE THE THREE, AND TWO, AIRCRAFT HAS NOT ADVERSELY AFFECTED THE CONVAIR PRODUCTION LINE. IN FACT, THIS MAY HAVE HELPED CONVAIR MATERIALLY BY:

1. BENEFICIAL REASSIGNMENT OF PERSONNEL,
2. PERMITTING MORE TIMELY COMPLETION OF ENGINEERING,
3. PERMITTING MORE ORDERLY, I.E., LESS OUT OF STATION CONSTRUCTION.

OF COURSE, DELIVERY OF THE TWO AIRCRAFT NOW SET ASIDE IS AFFECTED. THEY HAVE BEEN RESCHEDULED FOR SUBSTANTIALLY LATER DELIVERY.

IT SHOULD PERHAPS BE NOTED, ADDITIONALLY, THAT THE CURRENT CONVAIR PRODUCTION BOTTLENECK IS NOT IN THE FACTORY BUT ON FINAL AND THE FLIGHT LINE.

CERTIFICATION HAS NOT BEEN ADVERSELY AFFECTED BY SETTING AIRCRAFT ASIDE.

(Rummel Memorandum to Rourke re Intergration of CV-880s, 2/8/60)

705000

PLANNING AND RESEARCH  
TRANS WORLD AIRLINES, INC.  
300 MADISON AVENUE  
NEW YORK 17, NEW YORK

RJR  
2/15/60

WHEN WILL THE CONVAIR 880 RECEIVE FAA TYPE AND AIRCRAFTWORTHINESS CERTIFICATION?

CONVAIR FIRMLY BELIEVES IT WILL RECEIVE THE 880 TYPE CERTIFICATE BY MAY 1. IT EXPECTS TO HAVE FIVE HUGHES TOOL COMPANY AIRPLANES IN FULL PERFORMANCE BY THEN, FULLY ELIGIBLE FOR AIRCRAFTWORTHINESS CERTIFICATION ON MAY 1.

IT BELIEVES AUTO PILOT CERTIFICATION TO BE DIFFICULT BY MAY 1, BUT INCLUDED THIS IN ITS MAY 1ST ESTIMATE.

ONE TYPE CERTIFICATE IS BEING OBTAINED TO APPLY TO ALL 880's. CUSTOMER SPECIAL ITEMS ARE TO BE HANDLED BY INCLUSION ON THE EQUIPMENT LIST, WHICH IS PART OF THE TYPE CERTIFICATE SPECIFICATION.

CONVAIR HAS NOT YET SUBMITTED PERFORMANCE DATA FOR FAA CERTIFICATION. FAA CERTIFICATION FLIGHT TESTS HAVE BEEN UNDERWAY, HOWEVER, SINCE DECEMBER 1, 1959.

CONVAIR EXPECTS TO COMPLETE ITS FAA PERFORMANCE TESTS BY MARCH 31ST.

THE FAA SENT FIVE PILOTS TO CONVAIR TO EVALUATE THE RUDDER SYSTEM. CONVAIR REPORTS THE FAA OFFERED NO ADVERSE COMMENTS TO DATE. HOWEVER, THE FAA MAY REQUIRE CONVAIR TO HOLD WINGS LEVEL DURING ONE ENGINE CUT CLIMB TESTS. THIS NEEDLESSLY ADDS DELAY AND IS A MANEUVER WHICH WOULD NOT IN FACT BE USED. FAA CLAIMS THE BOSSING CLIMB TESTS WERE RUN THIS WAY, HOWEVER THIS IS NOT TRUE. CONVAIR WILL VERY CORRECTLY FIGHT WITH THE FAA IF IT IMPOSES OR NEEDLESSLY EXAGGERATES OR PERFORMANCE PENALTIES. TWA'S REVIEW OF THE RUDDER SYSTEM INDICATES SUBSTANTIAL IMPROVEMENT OVER BOSSING AND VERY ACCEPTABLE PERFORMANCE.

ARBITRARY AND IRRATIONAL FAA ACTS (NOT SPECIFICALLY ANTICIPATED) COULD DELAY CERTIFICATION BEYOND CONVAIR'S ESTIMATE.

THE WITHDRAWING OF THE ADDITIONAL CONVAIR CERTIFICATION TEST AIRPLANE, #3, AND THE SUBSEQUENT SUBSTITUTION OF AIRPLANE #5 HAD NOT ADVERSELY AFFECTED CERTIFICATION. AIRPLANE #5 IS BEING USED TO CERTIFICATE HUGHES TOOL COMPANY SPECIAL ITEMS AND IS PRESENTLY NOT CRITICAL BE TEST TIME. THE AIRPLANE FLEW ON FEBRUARY 2ND.

DX 127, page 6  
(Rummel Memorandum to Rourke re Intergration of CV-880s, 2/8/60)

RWR  
2/8/1960

PLANNING AND RESEARCH  
TRANS WORLD AIRLINES, INC.  
300 MADISON AVENUE  
NEW YORK 17, NEW YORK

D. WHAT IS CONVAIR'S MANPOWER SCHEDULE?

THE FACTORY IS CURRENTLY WORKING A TWO-SHIFT, FIVE-DAY WEEK.

THE FINAL ASSEMBLY FLIGHT LINE JUST OUTSIDE THE FACTORY IS NOW WORKING A TWO-SHIFT, SIX-DAY WEEK WITH SPOT SWING SHIFT APPLICATION. IT HAS BEEN ON THIS SCHEDULE FOR TWO WEEKS.

CONVAIR'S FLIGHT TEST LINE IS WORKING ON A THREE-SHIFT, SEVEN-DAY BASIS.

THE CURRENT "BOTTLENECK" IS CERTIFICATION ACTIVITIES AND FLIGHT TEST LINE ACTIVITIES. CONVAIR IS SHORT OF FLIGHT LINE SPACE AND APPARENTLY OF TRAINED PERSONNEL TO SOME EXTENT. RUMMEL LEARNED CURVE TRENDS WILL AT LEAST PARTIALLY CORRECT, HOWEVER.

(Rummel Memorandum to Rourke re Intergration of CV-880s, 2/8/60)

RUSCEN

RLR  
2/8/1960PLANNING AND RESEARCH  
TRANS WORLD AIRLINES, INC.  
380 MADISON AVENUE  
NEW YORK 17, NEW YORK

## E. WHAT IS PRESENT SCHEDULE FOR HUGHES TOOL COMPANY DELIVERIES?

THE FOLLOWING TABLE SHOWS CURRENT ESTIMATES OF CONVAIR 880 DELIVERIES TO THE HUGHES TOOL COMPANY AND COMPARES THESE ESTIMATES WITH THE SCHEDULE CONTAINED IN TWA'S "JET PLANS AND PREMISES" MANUAL. I HAVE BEEN UNABLE TO DETERMINE WHAT AIRCRAFT TWA CAN EXPECT TO RECEIVE FROM THE HUGHES TOOL COMPANY.

CONVAIR HAS CONFIRMED IT ESTIMATES DELIVERY OF THE FIRST NP TRAINING AIRPLANE ON FEBRUARY 25TH. THIS IS BASED ON INSPECTION COMPLETION ON FEBRUARY 22ND, DELIVERY ACCEPTANCE ON FEBRUARY 24TH. IN MY OPINION DELIVERY IS MUCH MORE LIKELY ON MARCH 10TH.

CONVAIR UNOFFICIALLY ESTIMATES DELIVERY OF THE SECOND NP TRAINING AIRPLANE ON MARCH 2ND. I ESTIMATE THIS ON MARCH 18TH.

ESTIMATED DELIVERIES

015000

MONTH	TWA JET PLANS & PREMISES OF JAN. 4, 1960		BOM BOV. OF CAPABILITY		OWENS 2-2-60	DUDLEY DICKES 2-3-1960	
JANUARY	1-31	1-1					
FEBRUARY	2-19	1-2					
MARCH			3-2 <sup>10</sup>	1-1	2-15 1-1	2-20	2-2
			3-15 <sup>10</sup>	1-2	2-23 1-2		
APRIL	4-4	1-3	4-1	1-3	4-1 1-3	4-30	5-7
	4-11	1-4	4-8	1-4	4-8 1-4		
	4-13	1-5	4-15	4-5	4-15 1-5		
	4-23	1-5	4-22	1-6	4-22 1-6		
			4-29	1-7	4-30 1-7		
MAY	5-3	1-7	5-3	1-8	4-31 4-11	5-31	4-11
	5-17	1-8	5-10	1-9			
	5-30	1-9	5-17	1-10			
			5-23	1-11			
JUNE	6-10	1-10	6-3	1-12	6-30 5-16	6-30	5-16
	6-16	1-11	6-9	1-13			
	6-21	1-12	6-16	1-14			
			6-21	1-15			
			6-27	1-16			
JULY	7-5	1-13	7-1	1-17	7-31 4-20	7-31	4-20
	7-27	1-14	7-11	1-18			
			7-20	1-19			
			7-25	1-20			
AUGUST	8-2	1-15	8-1	1-21	8-31 5-25	8-31	5-25
	8-13	1-16	8-11	1-22			
	8-24	1-17	8-17	1-23			
			8-23	1-24			
			8-30	1-25			
SEPTEMBER	9-5	1-18	9-1	1-26	9-30 5-30	9-30	5-30
			9-14	1-27			
	9-21	1-19	9-21	1-28			
			9-28	1-29			
			9-30	1-30			
OCTOBER	10-5	1-20					

FROM INFORMAL DISCUSSIONS WITH JERALD OWENS AND HIS REFERENCE TO COMMENTS BY COMNAVIAIR PERSONNEL FOLLOWING TALKS WITH MR. HUGHES, IT APPEARS POSSIBLE THAT TWA MAY RECEIVE THE FIRST TWENTY 880'S TO BE DELIVERED TO HUGHES TOOL RATHER THAN THE PART-PASCO APPROACH. ALTHOUGH NOTHING FIRMLY RELIABLE IS AVAILABLE IN THIS CONNECTION, TWA SHOULD CONSIDER THE EFFECT OF RECEIVING THE TWENTY AIRPLANES AT THIS ACCELERATED RATE.



(Letter-Rourke to Digges re Specification Modifications, 4/7/60) (128)

CWA - ENEC

DX-128

April 7, 1960

Our File: 22C-1293

Mr. D. H. Digges  
 Manager of Contracts  
 COWALK, A Division of  
 General Dynamics Corporation  
 3165 Pacific Highway  
 San Diego 12, California

Through: Mr. J. William Row, Resident Representative

Dear Sirs:

Mr. Carroll has briefed me as to the outcome of his discussions with Convair regarding the take-off flap settings Convair has selected without coordination with the operators. In my conversation with you on the phone a little over a week ago I expressed extreme dissatisfaction with Convair's handling of this matter and its failure to discuss with us whether the flap settings that you have selected meet the requirements of the operators.

I am sure that you are aware of the disadvantages of having multiple flap settings in an airline operation if these are not needed to gain the optimum performance. From what we have been able to determine a 30° flap setting would be far more satisfactory in that it achieves:

- Minimum take-off distances for most operating conditions, and
- Adequate airworthiness climb under the environmental conditions that we will operate.

We certainly have no objection to you providing additional flap settings in the Operating Manual, and even urge you to do so, but our dissatisfaction has to do with the flap settings that you picked, namely 25 and 40°. Since we will have to operate initially with 20° flap setting, this means that we will be unnecessarily penalized at the outset. It also means that we will have to run a second set of airport data to employ the 40° flap setting. Had the flap setting selected included a 30° flap, we would have minimized the initial penalty and probably would not have had to compute runway performance for the 40° flap setting. Moreover, since you visualize flap settings of 20 and 40°, the flap setting here now becomes practically meaningless.

Under the circumstances I cannot understand Convair's thinking in not consulting with us. As a result of this handling and since this information did not come to light until just a matter of two weeks ago, you apparently are in the position of not being able to supply us with the desired data at the time when we need it.

PLANNING AND RESEARCH

APR 6 1960

Mr. D. E. (Letter-Rourke to Digges re Specification Modifications, 4/7/60)

Our File # 600-1295

It becomes doubly troublesome to me that Convair did not consult with us when I look at our jet operating experience and the fact that we are the most knowledgeable people with respect to our routes and, therefore, know far better what is best for us as an operator. Just in passing, as of March 30, we have flown 45,150 jet hours and have made 17,000 take-offs and are serving 15 cities with jets.

Under the circumstances I think it behooves Convair to correct a very undesirable situation by providing us with 30° flap setting data without cost and to make it available as near as possible to May 15. I believe it has been the general intent of the specification and the contract that Convair would work closely with the operator in defining the operational application of the airplane. It is unfortunate that I must say this, but we have had so many cases of Convair making decisions without consulting us. I think that one of the largest problems we have had in our mutual dealings has been in this area. It has not been our experience heretofore with other manufacturers to find things out by chance and quite often when it is too late to do anything about it. It has been difficult at times for our representatives on routine occasions to have access to your engineering personnel, although of late weeks this certainly has improved. Since Convair has repeatedly desired that our dealings be primarily through the contract group, this means, Dudley, that we must look to you and your people to be our advocates on matters such as this. It also behooves Convair personnel to become more sensitive to operating problems and to keep our people better informed of their thinking while it still is in the formative stage.

Best regards,

R. K. Rourke

Assistant Vice President

Equipment Planning and Development

MR:JC

cc: Mr. R. L. Bayless

Mr. R. W. Rummel

AX-1640

DX 130

(Bew Wire to Rourke re Convair Delays, 5/27/60)

DX-130

*OK*

*[Signature]*

HVVXX  
GA. WITH 440

27 MAY 1960

MXCGD ROURKE

3-35. FLC IS COPY OF WIRE SENT TO R W RUMMEL THIS DATE.

EARLY DELIVERIES HAVE SLIPPED SINCE THE PUSH WHICH PRODUCED AIRCRAFT NOS. 7, 11, AND 16 FOR DELTA AND AIRCRAFT NO. 10 FOR OUR TRAINING-- ATTRIBUTABLE TO INCORPORATION OF LATE CHANGES, PARTS SHORTAGES, AND IN MY ESTIMATION, INADEQUATE MAN POWER IN OFF-STATION FINAL ASSEMBLY WHERE DELIVERIES ARE NOW BUNCHING UP. DELTA'S NO. 17 AND HUGHES TOOL COMPANY NO. 20 ARE THE ONLY POSSIBLE MAY DELIVERIES, ESTIMATING ONE NO SOONER THAN 31 MAY AND ONLY THEN IF CV WORKS MEMORIAL DAY WEEK-END.

AIRCRAFT 12 AND 23 HAVE BEEN AFFECTED BY A CONFUSED SLOW-DOWN STATUS. AIRCRAFT NO. 23 HAS BEEN MOVED TO A LESS ACCESSIBLE SPOT ON THE RAMP AND AIRCRAFT NO. 12 HAS BEEN GIVEN A COAT OF GREEN STORAGE PAINT ON LOWER FUSELAGE AND UPPER WING SURFACES. BOTH AIRCRAFT WERE WORKED HEAVILY LAST NIGHT, HOWEVER. CV ATTEMPTING TO HOLD AIRCRAFT NO. 24 ON STATION AND, BARRING THE UNFORESEEN, IT SHOULD DELIVER APPROXIMATELY 18-20 JUNE.

AIRCRAFT NO. 22, WHICH WAS MOVED OUT OF HANGAR IN INCOMPLETE STATUS, HAS SUFFERED FROM BEING OFF-STATION AND HAS SLIPPED CONSIDERABLY IN LAST FEW DAYS.

ACTUALLY LOOKS LIKE A DELIVERY IN THIRD WEEK OF JUNE RATHER THAN 10 JUNE, WHICH WAS MY LAST ESTIMATE.

AIRCRAFT NOS. 25 AND 26 ARE CLOSE TO BEING ON STATION AND WITH PROPER EFFORT COULD DELIVER IN LAST WEEK OF JUNE.

AM ATTENDING MEETING THIS MORNING TO DETERMINE CV PRODUCTION PLANS AND WORK SCHEDULE FOR WEEK-END. WILL KEEP YOU ADVISED.

# CONVAIR

NV

AX-1641

A DIVISION OF GENERAL DYNAMICS CORPORATION

DX 135, page 1

(Letter - Convair to Bew re CV-880 Delivery, 1/6/61)

SAN DIEGO 12, CALIFORNIA,  
TELEPHONE CIPRESS 6 6011

6 January 1961

11-2-350

PSC:DJ

Mr. J. W. Bew  
Resident Representative  
Trans World Airlines  
c/o Convair, A Division of General Dynamics  
San Diego

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Dear Bill:

Yesterday, in a meeting with Messrs. Bourke, Cannady, West, Digges, Chambers and yourself, we provided you with our target schedule for delivery of the Model 22 TWA and Hughes Tool Company Aircraft including certain conditions associated therewith. As a matter of record, the information given to you yesterday is set forth below:

Aircraft No.

Date

31  
24  
28  
25  
27  
32  
14

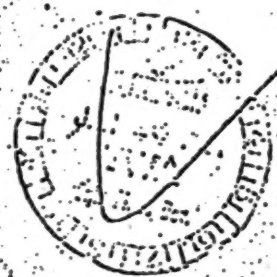
Jan. 1, '61  
Jan. (As soon as possible) Jan. 5  
Jan. (As soon as possible) Jan. 6  
Jan. (As soon as possible) Jan. 10  
Jan. (As soon as possible) Jan. 8  
Jan. 27 Jan 30  
Jan. 14 15  
Jan. 23 25

Feb. 21  
Feb. 7  
Feb. 14  
Feb. 23

Mar. 9  
Mar. 14  
Mar. 28  
Mar. 31

Apr. 30  
Apr. 10  
Apr. 15  
Apr. 28

May 8  
May 20  
May 31





Mr. J. V. Bew

- 2 -

11-2-390

This aircraft will be offered to Hughes Tool Co. representatives on January 11, 1961 in an unpainted condition. If Hughes Tool Company responds indicating its ability to process the aircraft for delivery, the aircraft will be painted and processed through final acceptance, which task will be completed on or before January 27, 1961. If the Hughes Tool Company does not indicate its ability to process the aircraft for delivery on January 11, 1961, the aircraft will not be painted but rather placed in storage.

If the specific paint job and general configuration of these two aircraft can be identified on or before January 15, 1961, the delivery dates as indicated are applicable.

Provided this ship is returned from Flight Test on 1-12-61 as scheduled.

Since our meeting with you which was held within ten minutes of the time Mr. Louis made the schedule available to us, certain minor changes have occurred and these changes are shown above in red print.

At the conclusion of our presentation of the schedule, you asked certain questions relative to our planning. These questions which are set out below for clarification will be answered sometime today:

- (a) When is Convair going to staff personnel for the above schedule?
- (b) What will the Labor Force be as compared to today's Labor Force?
- (c) Why did Ships No. 6 and 9 slip from their previous apparent position?
- (d) Why did Ship No. 33 move from February to March?
- (e) Will rescheduling of the Model 224 Hughes Tool Company program, as indicated in Convair's recent letter, interfere with the Model 22 schedule set out above?

Very truly yours,

C O N V A I R

A Division of General Dynamics Corporation  
(San Diego)

Manager of Operations



AX-1643

DX 137

(Telegram-Bew to Rummel re Convair Delays, 2/16/61)

TELEGRAM

W. P. MARSHALL, President

SF-1201 (4-62)

No. 1001 (4-62)

No. 1001 (4-62)

No. 1001 (4-62)

No. 1001 (4-62)

The time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination.

0510 05641

0508435 NLPD SAN DIEGO CALIF 16

R W RUMMEL

300 MADISON AVE NYK

DX-137 G

THE FOLLOWING WERE LAST SENT N R PARKER THIS DATE. EARLIER CONSIDERATION  
 WITH LOOKS DELIVERY SCHEDULE WAS ON BASIS CONVAIR WOULD BE  
 PROPERLY STAFFED BY 25 JANUARY 1961. I CAN GIVE NO LOGICAL  
 REASON WHY THIS WAS NOT ACCOMPLISHED AS DISCUSSED IN OUR PHONE  
 CALL OF 15 FEB, IT IS MY OPINION CONVAIR IS APPROXIMATELY 500  
 MEN SHORT ON THE OUT DOOR PRODUCTION LINE.

AT PRESENT PACE, CONVAIR CAN NOT YET FOLLOW ON SCHEDULES  
 AND FEB AND MARCH DELIVERIES ARE NOW SLIPPING DAILY DUE TO  
 CONVAIR CONTROL VARIABLES. 1 HURRING MUST BE ACCELERATED TO  
 IMMEDIATELY COVER FULL PRODUCTION ON AT LEAST FIVE AIRCRAFT;  
 OTHER THAN 2 1/2. 2 SUPERVISION MUST BE STRENGTHENED AND NEVER  
 DELETED BY OTHER PRODUCTION EFFORTS. 3 WORK MUST BE PROGRAMED

The time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination.

0508435

2=

16 PM 10.15

ROUND THE CLOCK, 7 DAYS A WEEK. 4 SOME semblance of AN ORGANIZED  
 DELIVERY CENTER MUST BE CREATED. 5 CHANGE OF FACTORY PRODUCTION  
 CENTER,

RUMMEL

THAT, REPLACED BY JOE PARKER, COULD LEAD TO FURTHER REORGANIZATION  
 RESULTING IN IMMEDIATE CONFUSION, INSECURITY, AND INEFFECTIVENESS  
 U T DEN 5065 LAFAYETTE HIGHWAY SAN DIEGO 1 CALIF

(Letter-Convair to Bew re Convair Delays, 3/16/61)

1. Division of General Dynamics Corporation  
(San Diego)

DX-139

16 March 1961

11-2-121

Mr. C. H. Day

Assistant Representative

Northwest Airlines, Inc./Engines Pool Co.

c/o Dayton

San Diego 12, California

Dear Sir:

On December 30, 1960, General Dynamics Corporation and North West Airlines reached an agreement which initiated a program for the completion and delivery of Model 22 aircraft to the airline. Prior to this time, the only 800 production deliveries that had been or were being processed on a standard industrial basis with a definitive completion date were the aircraft for Delta Air Lines and six aircraft for Northwest Airlines. On January 6, 1961, in response to an urgent request from NW, we set forth a target delivery schedule for all aircraft ordered by the Engines Pool Co. (with the exception of the aircraft delivered to Northwest), which was based upon the best analysis we could make in the short period of time between that date and the signing of the agreement to commence factory completion and delivery. While the volume of six aircraft for Northwest generated some expansion in our factory schedule objectives, the task in that instance was primarily one of incorporating Northwest production and otherwise delivery in an as-is condition. In summary, we have had opportunity to consider full scale re-activation of the Model 22 production line occurred with the signing of the December 30, 1960, Agreement. Subsequent to the January 6 schedule advice, it became apparent that we had not had enough time to fully assess the effects of the long term program stoppage upon aircraft condition, outstanding work, manpower, etc., and as a consequence, found it necessary to carry out an exhaustive analysis of the status of the overall program to more accurately define our target delivery schedule.

On November 1, 1960, which was the beginning of the processing of Northwest aircraft, there were 4,000 factory personnel on the payroll. Since that time, 1,852 factory personnel have been progressively added as rapidly as they could be employed and effectively used. Specifically, we have created a new department, 141-1, to prepare your aircraft for delivery. This department is now manned with 575 workers. The Field Operations Department, 171, has been increased from 151 to 213 workers. We plan to schedule a five-day work-week using two ten-hour shifts, two eight-hour shifts on Saturday, and Sundays as required, expanding up to 25% overtime. In addition to this employment activity, we have negotiated the temporary loan of 200 workers with required skills from our other divisions.

As a result of the above described efforts in analyzing the program status as well as reflecting the build up in the level of factory personnel, and in consideration of NW's experience with the 800 on the line, we have now established a thoroughly independent program for the completion and delivery of the remaining aircraft, which programming will require full configuration completion prior to delivery except on the 100, 110, 120, 130, and 140. The factory or delivery colors in the Engines

16 March 1961  
21-2-1961

Estimated cost of printing Railway Circular has been calculated for the following

Adm. of General  
 Hospital, Washington, D.C.

January 1	1	1
January 2	2	2
January 3	3	3
January 4	4	4
January 5	5	5
January 6	6	6
January 7	7	7
January 8	8	8
January 9	9	9
January 10	10	10
January 11	11	11
January 12	12	12
January 13	13	13
January 14	14	14
January 15	15	15
January 16	16	16
January 17	17	17
January 18	18	18
January 19	19	19
January 20	20	20
January 21	21	21
January 22	22	22
January 23	23	23
January 24	24	24
January 25	25	25
January 26	26	26
January 27	27	27
January 28	28	28
January 29	29	29
January 30	30	30
January 31	31	31

\_\_\_\_\_

DX 139, page 3  
(Letter-Convair to Bew re Convair Delays, 3/16/61)

16 March 1961  
11-2-1835

Attached hereto is an index to the items which constitute the above referenced equipment configuration, all of which will be incorporated prior to delivery to the above schedule except in the instance of items 2, 25, 33, 35, and 42, which items have been recently committed for delivery on specific dates. In the event this will prove to have necessitated of these items in favor of an earlier delivery schedule, such a program can be established only with the specific understanding that the will also assume Convair's of all responsibility for incorporating such items. Convair would, however, retain the obligation to supply this and receive delivery for the installation of the items by GAI.

We regard the necessity for the schedule adjustment as items above but assure you that everything possible is being done to maintain or improve the above schedule.

Very truly yours,

CONVAIR  
A Division of General Dynamics Corporation  
(San Diego)

*E. J. Gorman*

E. J. Gorman  
Manager of Commercial Contracts



(Letter - Convair to Rourke re CV-880 Deliveries, 7/11/61,

July 11, 1961

DX 142

Mr. R. W. Rourke  
Assistant Vice President  
Equipment Planning and Development  
Trans World Airlines  
10 Richards Road  
Kansas City 8, Mo.

Dear Russ:

Since your telephone call last week regarding the delivery schedule which Bill Bew had recently given Mr. Tillinghast on the remaining 880 aircraft assigned to TWA, I have personally conducted a very thorough analysis of the delivery situation.

At this time I think it is worthwhile to review for the record the delivery picture as of this date for the sixteen 880s delivered so far in 1961. You will recall that in the middle of March of this year I met with you, Oz Cocks, and Bob Rummel in New York and presented Mr. Chambers' March 16, 1961 letter to Mr. Bew, giving the background on the target schedule of January 6, 1961 and submitting a revised schedule. At that time I pointed out that while the first nine aircraft had been delivered approximately on schedule, with no aircraft slipping more than one week, we anticipated a delay on the remaining aircraft because of our inability to forecast on short notice the task involved in preparation of these aircraft because they had not been previously completed nor flown out.

With the exception of aircraft No. 22-00-33 which encountered excessive trim difficulties requiring in excess of one month to correct and No. 40 which was ten days late, the next seven aircraft were delivered ahead of schedule. (See Attachment). Actually, this is a remarkably good performance when you consider that most of these aircraft had been stored outside for over one year and required not only completion but extensive modification for recent engineering changes which were not anticipated at the time of the 16 March schedule. (See Attachment).

We now are required to deliver to you the last three aircraft, specifically, Serials 6, 19, and 3. You will recall, however, that the 16 March schedule suggested a delivery schedule ending July 24 for a total of twenty aircraft but including Serial Nos. 39 and 34 instead of 19 and 3. I feel that this schedule could have been met satisfactorily, since the condition of 39 and 34 was excellent at the time the schedule was proposed. You elected not to further pursue the possibility of convincing the Hughes Tool Company that these aircraft (Nos. 39 and 34) should be assigned to TWA in spite of the fact that you were successful



(Letter - Convair to Rourke re CV-880 Deliveries, 7/11/61)

1142

Mr. R. W. Rourke

July 11, 1961

Page 2

Unfortunately, the result is that the three remaining assigned aircraft for TWA include Nos. 19 and 3 instead of Nos. 39 and 34. The said remaining aircraft (i.e., Nos. 6, 19, and 13) are the ones requiring the greatest re-work of any of the other aircraft and have been in storage for the longest period of time. As we operate the systems on these aircraft we find that extensive removal and refurbishment is required and in spite of the fact that we have used parts extensively from the remaining Hughes Tool Company aircraft in order to meet the TWA schedule, we are having difficulty doing so. We are continuing to bend our best efforts in this direction however.

With regard to the schedule given to you by Mr. Bow showing July 15 for No. 6, August 15 for No. 19, and September 15 for No. 3, those dates are not familiar to me. The dates on our 16 March letter were July 24, August 21, and August respectively. At the present time, do not anticipate that those dates will be substantially slipped, except for No. 3. No. 3 has been the most difficult aircraft to complete since it was the flight test aircraft and had to be extensively stripped and re-built in order to deliver it to you as a new aircraft and fully modified to the latest engineering configuration. In other words, I feel that we will deliver within one week of the July 24 and August 21 dates but No. 3 will probably slip at least thirty days.

I recognize that Mr. Chambers' modified his letter of March 16 by his letter of March 24, but I do not believe that adequate consideration was given in the 24 March letter to the effect of your demands which created the 24 March letter. I would, therefore, prefer to stand on the delivery dates of 16 March recognizing that the schedules for Nos. 39, 34, 9, and 13 have now been violated because preference was given to the aircraft assigned to TWA.

You indicated over the telephone that Mr. Tillinghast had lost confidence in Convair's ability to schedule aircraft, however, in view of the above, I feel that we at Convair have not had a proper opportunity to inform Mr. Tillinghast regarding our performance to schedule and some of the problems which have been experienced in delivering aircraft to TWA.

In view of the fact that Mr. Tillinghast has not had the benefit of our counsel, I would appreciate it if you would at the very least show him this letter. I would appreciate, however, the opportunity to meet with Mr. Tillinghast and review with him the total history of the 880 program which, as you know, has been

(Letter - Convair to Rourke re CV-880 Deliveries, 7/11/61)

Mr. R. W. Rourke

July 11, 1961

Page 3

entirely satisfactory from a delivery standpoint for our other customers.

I trust that the above information fully answers your telephone inquiry. If you desire any further information please do not hesitate to call upon me.

GENERAL DYNAMICS/CONVAIR



R. C. Loomis  
President

RCL:c

Attachments

cc: R. W. Rummel  
J. W. Bew

(Letter - Rourke to Convair re CV-880 Deliveries, 8/2/61)

August 2, 1961

Mr. R. C. Locsin  
President  
GENERAL DYNAMICS/CONVAIR  
San Diego, California

Dear Bob:

In response to your letter of July 21, please be assured that your letter has been brought to Mr. Tillinghast's attention, and a copy of this reply is likewise being sent to him. I feel sure that when mutually convenient he will be glad to meet with you and hear your comments concerning the total history of the 880 program.

The really important aspect of the moment is for Convair to find ways and means for expediting delivery of the remaining aircraft, restoring delivery dates to at least those committed in Mr. Chambers' letter of March 24, 1961.

In aid of a full understanding of background, I think the following should be mentioned, some of the events, of course, anteceding your personal connection with the 880 program.

1. As executed in 1956, the 880 contract called for delivery of provisionally certificated aircraft beginning in November of 1959, with full certification to be accomplished by May 1, 1960. This appears to have been amended in March of 1960 so as to provide a revised delivery schedule for fully certified aircraft, four in May of 1960 and some four or five per month in each succeeding month until deliveries were completed in November of 1960.
2. Early in May of 1960, Hughes Tool Company assigned 20 of the 30 aircraft to TWA.
3. Convair refused to honor the assignment to TWA without confirmation from the Hughes Tool Company. During the whole of 1960, such confirmation was received only with respect to one aircraft, delivered in May of 1960. TWA's efforts to obtain further delivery pursuant to the assignment were fruitless until January 1, 1961, when a second airplane was delivered pursuant to the Letter Agreement between Convair and TWA dated December 30, 1960.
4. As time passed between May and the end of 1960, Convair repeatedly asserted its ability to deliver the 880s very promptly. For example, Convair's letter of August 2, 1960, designated 11-2-3945, set forth a delivery schedule indicating delivery of 6 aircraft in August, 5 in September, 5 in October, 3 in November and 4 in December. You and I personally discussed the delivery situation in your office just a few weeks before the close of 1960, and you asserted that with application of overtime effort a total of 10 aircraft could still be delivered before the end of 1960.

On this background, we must take issue with any implication that this story begins with the January 6, 1961 schedule, and that the January 6 schedule was done in haste. On the contrary, the January 6 schedule was a revision of the many preceding schedules, developed over a long period of time. Contrary to being conceived in haste, the January 6 schedule should have been a most deliberate and considered evaluation of all the factors in the situation. Hence our increasing shock that each succeeding delivery schedule should reflect substantial further slippage to our disadvantage.

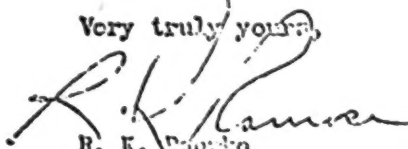
You tend to place the blame on TWA for failure to obtain assignment from Toolco of airplanes #39 and #34. During the development of your March 16 and March 24 letters Convair had intimate knowledge of the airplanes that were assigned to TWA and the nature of the discussions which took place leading to such assignments. It is our understanding that Convair had many more discussions with the Hughes Tool Company and certainly had knowledge of the assignment schedule. The aircraft assigned to TWA came about after considerable discussions and negotiations and by the March date they represented a contractual understanding between the three parties. TWA was not in position to cause a change in these conditions. You mentioned that it was our requirement to insist on the delivery of the twenty assigned airplanes that caused work effort on the unassigned airplanes to be postponed until last. Had Convair elected, however, to maintain the staffing on the 880 program it had in April, these last airplanes could have been completed in an orderly manner for delivery to your other customer. Convair had in its hands the control of scheduling work on these airplanes concurrent with the TWA deliveries.

Related to this, you mention that delivery of TWA's 880s required robbing of parts from other airplanes. This we are sure was Convair's decision, and it was made necessary by Convair's inadequate provisioning of extra components in order to provide the normal replacements which occur during routine aircraft acceptance. It has been our experience with other manufacturers that units which experience failure during acceptance flying are procured in excess of the normal quantity in contemplation of this situation. Therefore, TWA cannot accept any responsibility or blame for this parts shortage.

We have dealt with most of the major aircraft manufacturers in the United States during our corporate history, and are aware of the problems connected with your business. In all this experience, however, we have never encountered such a disparity between delivery schedules and actual delivery as has occurred in the 880 program with respect to the aircraft being acquired by TWA.

In conclusion I must repeat that we insist on Convair at least making good its last previous delivery commitment on 880 aircraft and hopefully to better these dates.

Very truly yours,

  
R. K. Rourke  
Assistant Vice President  
Equipment Planning and Development

CR:JC

cc: Mr. C. C. Tillinghast, Jr.

AX-1652

DX 146, page 1

(Letter - Convair to Toolco re Model 30 Delivery Positions, 5/6/60)

**C O N V A I R**

A DIVISION OF GENERAL DYNAMICS CORPORATION

GENERAL OFFICES

SAN DIEGO 12, CALIFORNIA

TELEPHONE: CYPRESS 8-8811

May 6, 1960

Hughes Tool Company  
Houston, Texas

Attention: Mr. C.H. Price

Gentlemen:

Pursuant to our telephone conversations with your President, Mr. Hughes, some time ago, Convair undertook to hold open for Hughes Tool Company delivery positions for six (6) Convair Model 30 aircraft in the months of July, August and September, 1961. The exact positions which we have held open to date for Hughes Tool Company are one (1) during the month of July, two (2) in August, two (2) in September and one (1) in October, and are the earliest uncommitted delivery positions available for Model 30 aircraft.

Although the holding open of the aforesaid delivery positions has to date been at Convair's risk exclusively, Convair does not feel that its commitment to Hughes for the availability of these delivery positions can be continued beyond this date, May 6, 1960, in the absence of Hughes' agreement to protect Convair against loss as hereinafter provided.

You are advised therefore that, unless you shall have executed before May 7, 1960, the enclosed copies of this letter and returned same promptly to us, thereby evidencing your agreement to the terms hereinafter set forth, the six delivery positions hereinabove prescribed will no longer be available.

In the event, on or before July 6, 1960, Hughes Tool Company shall have executed, and delivered to Convair, a definitive purchase agreement covering the manufacture and sale by Convair and purchase by Hughes of six (6) Convair Model 30 aircraft, for delivery in accordance with the schedule set forth in the first paragraph of this letter, on substantially the same terms as those prescribed by the attached Purchase Agreement, then in such event, this letter agreement shall have no further force or effect; otherwise, Convair may on July 7, 1960 or at any time thereafter cancel all or any of said six aircraft, and, in such event, Hughes agrees to pay to Convair upon Hughes' receipt of



(Letter - Convair to Toolco re Model 30 Delivery Positions, 5/6/60)

Hughes Tool Company  
Houston, Texas

May 6, 1960  
Page two

an invoice therefor, all costs which on or prior to July 6, 1960, Convair shall have expended or irrevocably committed for expenditure by Convair directly attributable to the manufacture of such of said six (6) Convair Model 30 aircraft as shall be so cancelled.

Hughes is hereby advised that the six delivery dates committed to Hughes are dependent upon Hughes' acceptance of a detail specification therefor in substantial accordance with that set forth in Detail Specification Report No. ZD-30-005 (Revision of 1 May 1959) including Change Orders thereto numbered 1 through 13.

As you know, Convair is now at Convair's risk and expense holding open for Hughes two (2) delivery positions for Model 30 aircraft for each month beginning October 1961 and ending December 1962. These positions cannot be held beyond July 6, 1960, in the absence of a firm commitment from Hughes to purchase additional Model 30 aircraft.

If the foregoing is acceptable to you, kindly so indicate by executing and returning to us the enclosed two copies hereof.

Yours very truly,

GENERAL DYNAMICS CORPORATION

*J. V. Naish*  
J.V. Naish

President - Convair Division

Accepted and agreed to  
this 6th day of May 1960

HUGHES TOOL COMPANY

By *K. M. Hickey*  
Title *Vice President*

AX-1654

DX 148

(Toolco - G.D. Letter Agreement re 6 Model 30s, 7/14/60)

GENERAL DYNAMICS

C O R P O R A T I O N

445 PARK AVENUE, NEW YORK 22, N.Y.

July 14, 1960

Hughes Tool Company  
2200 Gulf Building  
Houston 2, Texas

Attention: Mr. Raymond M. Holliday.

Re: Purchase by Hughes Tool Company of  
Six (6) Convair Model 30 Aircraft

Gentlemen:

This will confirm our agreements reached last night.

Please refer to our Letter Agreement dated May 6, 1960 wherein Hughes Tool Company is advised that Convair is holding open for the benefit of Hughes certain delivery positions of Model 30 aircraft, and our Letter Agreement of July 7, 1960 amending same.

This letter will confirm our further agreement that wherever in said Letter Agreement of May 6, 1960 the dates "July 6, 1960" or "July 7, 1960" appear, there shall be substituted therefor the dates "August 6, 1960" and "August 7, 1960", respectively.

Our said Letter Agreement of July 7, 1960 is in all respects superseded hereby and shall be of no further force or effect.

Please indicate your agreement to the foregoing by signing in the space provided below the two (2) enclosed copies hereof and returning same to us.

Yours very truly,

GENERAL DYNAMICS CORPORATION

By

Earl Dallen Johnson  
President

Accepted and Agreed to as  
of the 14<sup>th</sup> day of July, 1960.

HUGHES TOOL COMPANY

By

Raymond M. Holliday

DX 152, page 1

co - G.D. Letter Agreement re Additional Model 30s, 9/6/60)

(678)

HUGHES TOOL COMPANY

Executive Offices

Twenty-second Floor Gulf Building

Houston 2, Texas

DX 152 ✓

September 6, 1960

General Dynamics Corporation  
Convair Division  
5 Pacific Highway  
San Diego 12, California

Gentlemen:

Please refer to letter dated May 6, 1960 from General Dynamics Corporation, Convair Division ("Convair") to Hughes Tool Company ("Hughes") and to the amendment to said letter dated July 14, 1960, and to letter dated July 14, 1960, and to letter dated August 6, 1960, all regarding Convair's agreement to hold open for Hughes certain delivery positions for Convair Model 30 aircraft and Hughes' agreement, in certain events, to protect Convair against expenditures with respect to such delivery positions.

The next to last paragraph of the aforesaid letter of May 6, 1960 refers to Convair's agreement to hold open, at Convair's risk and expense, additional delivery positions for Model 30 aircraft, such delivery positions consisting of one (1) the month of October 1961 (in addition to the one (1) October 1961 delivery position referred to in the first paragraph of the May 6 letter) and two (2) delivery positions for each month beginning November 1961 and ending December 1962. It is intended by this letter that Hughes agree to protect Convair as hereinafter provided, from exposure to loss attributable to the (2) January 1962 positions.

In the event, on or before October 6, 1960, Hughes shall have executed and delivered to Convair a definitive purchase agreement covering the manufacture and sale by Convair of the purchase by Hughes (exclusive of the six (6) Convair Model 30 aircraft referred to in the first paragraph of the aforesaid May 6 letter and of the three (3) Convair Model 30 aircraft referred to in the third paragraph of the aforesaid July 14 letter and of the two (2) Convair Model 30 aircraft referred to in the aforesaid August 6 letter) of two (2) Convair Model 30 aircraft for delivery in January, 1962 on substantially the same terms as those prescribed by the draft of Purchase Agreement attached to the May 6 letter, then, in such event, this letter agreement shall have no further force or effect;

(Toolco - G.D. Letter Agreement re Additional Model 30s, 9/6/60)

otherwise, Convair may, on October 7, 1960 or at any time thereafter, cancel any of the said two (2) aircraft with respect to which Hughes shall not have theretofore executed and delivered to Convair such a definitive purchase agreement, and, in such event, Hughes agrees to pay to Convair upon Hughes' receipt of an invoice therefor, all costs which on or prior to October 6, 1960 Convair shall have expended or irrevocably committed for expenditure to the extent such costs are directly attributable to the manufacture of such of said two (2) Convair Model 30 aircraft as shall be so cancelled.

Hughes understands that the two (2) delivery dates herein referred to are dependent upon Hughes' acceptance of the detailed specifications for the two (2) Model 30 aircraft in substantial accordance with that set forth in Detailed Specification Report No. ZD-30-005 (Revision of 1 May 1959) including Change Orders thereto numbered 1 through 13.

If the foregoing is acceptable to you, kindly so indicate by executing and returning to us two of the enclosed copies hereof.

Yours very truly,

HUGHES TOOL COMPANY

By Raymond M. Holliday  
Raymond M. Holliday  
Vice President

Accepted and agreed to as of the  
6th day of September, 1960.

GENERAL DYNAMICS CORPORATION

By

Earl D. Johnson  
Earl D. Johnson  
President

(Boeing Memorandum re Conversations with H.R. Hughes, 9/23/55)

To: W. M. Allen G. C. Martin  
E. C. Wells R. L. Bell  
✓ J. B. Connelly G. S. Schairer

Subject: Contacts with Howard Hughes (TWA)

The following is a resume of the three telephone conversations I had with Howard Hughes on September 21 and 22 in Los Angeles. Mr. Hughes requested that we keep confidential any information he gave to me.

1. Mr. Hughes stated that he had information on good authority that Pan American could finance at this time only the purchase of 12 or 15 jet transports and that would be the extent of their commitment at this time.
2. Hughes feels that C. R. Smith and Juan Trippe are playing Douglas and Boeing against each other in connection with deliveries and specifications with the objectives of (1) getting the best deal possible for themselves, and (2) to retard deliveries to TWA as much as possible. He feels Douglas is much more inclined to go along with these airlines with objective number (2) than is Boeing. He bases this on a series of conversations he has had with Nat Paschall over the last two weeks and yesterday. Two weeks ago, Paschall said Douglas would offer TWA attractive delivery positions, but yesterday he said they could offer TWA nothing until 1956. Hughes said that in yesterday's conversation, Paschall indicated that "he could not care less" whether or not TWA ever got any Douglas airplanes. (Hughes reported that he talked to Mr. Paschall yesterday while Paschall was at UAL's base in San Francisco.)
3. Hughes said that about one month ago, C. R. Smith went to Donald Douglas and told him he thought Boeing's announced price of four and one-half million dollars for the 707 would be reduced and asked how much Douglas intended to reduce its price for the DC-8. Douglas replied to the effect that he didn't intend to reduce the price and, as a matter of fact, he thought his price was too low and might have to be raised irrespective of what Boeing did to their price. Hughes feels this made Mr. Smith unhappy and that it was then that Smith came to Seattle to talk to Mr. Allen and made Boeing an offer. Hughes reported that Bob Gross told him that Smith told Gross in New York last week that Boeing's acceptance of American's offer was hedged with so many provisos that Smith withdrew it. I told Hughes that work on the final agreement was being held in abeyance until we negotiated the final specifications and that as far as I knew the basic deal was "on", but Hughes felt to the contrary. Hughes reported that the American Technical Team was at this time in Los Angeles negotiating diligently with Douglas on the detailed



THE UNIVERSITY OF CHICAGO PRESS

CHICAGO, ILL. 60607  
1971

(Boeing Memorandum re Conversations with H.R. Hughes, 9/23/55)

specification for the DC-8. (The American Technical Team were, in fact, in Los Angeles in force, but from the information received by me I gathered they were working with Lockheed on the Electra.)

- (4) Upon query Hughes stated that he absolutely had no deal outstanding with Convair because of Air Force pressure on Convair to do more and better on certain Air Force projects at Convair. He said that he had worked secretly for six months with Convair on the deal for 30 jet transports, the first of which is to be delivered in October 1958. He stated that the detail specifications had been completely negotiated, a formal contract had been agreed upon by both parties and the financial arrangements made when the "rug was jerked out from under the project".
- (5) When asked what TWA's interest is in the Boeing 707, Hughes replied that if Tripps, Smith and Douglas shut Boeing out he'd come up and buy 30 airplanes from us if we wanted to go ahead. If we go ahead with Pan American, American and United he said he would consider buying 15 if the deliveries weren't too bad. However, he would not take any action or send his technical men to Seattle until he saw which way the wind blew. (He declared he didn't want an airplane just like American's!)

#### Conclusions

My general conclusions are that Mr. Hughes is quite frustrated and undecided. He apparently dislikes Pan American, American and Douglas and does not want to see them control the market for jet transports but, on the other hand, I think he would like to see them do so if he thought Boeing would go ahead with TWA with deliveries ahead of his competitors. (He does not consider United a real competitor.) I assured him that we could not go forward with the project with a sale of only 30 airplanes. He thought perhaps we could consummate enough sales to foreign operators to make the project worthwhile, but I doubted it.

It is inconclusive to me that the Convair deal is entirely out. If it is really dead, I am sure he would be more interested in our airplane and would send his technical people to Seattle to learn more about it.

I recommend that we go forward as fast as possible with Pan American, American and United and not worry about TWA for the time being. I do recommend, however, that we hold some delivery positions open and not commit all available airplanes to the first three customers.

Special Agent in Charge

W. D. Beall

Note: Model 707 Performance Comparison Sheet (JT3C-4 and JT4A-3) dated September 19, 1955 was sent to Mr. Hughes by special messenger.

October 31, 1955

FB  
File

707 - TW

MEMO REPORT

DX 169

To: W. M. Allen R. L. Bell  
E. C. Wells J. B. Connelly

Subject: Telephone Conversation between Howard Hughes  
in Los Angeles and W. E. Beall in Seattle at  
8:00 AM, October 31, 1955.

1. Mr. Hughes inquired as to the status of the sale of the Boeing 707 to American Airlines. I told him we were in active negotiations and that we hoped we could sell them.
2. He asked why we were not able to sell United and when I replied that I didn't know, he made the categorical statement that United never had any intention of buying 707's in any event.
3. He asked that if American did not buy 707's, if there would be any chance for us to match Pan American's schedule. I explained to him that we couldn't match Pan American's schedule because it is the period of our production build-up and the first airplanes we could quote to another customer would be April or May.
4. I asked him if he wanted a delivery quotation, but he said he would wait until after our American deal was settled one way or the other. If American does not buy from us he might be tempted to talk to Trippe about matching delivery schedules.

He asked that his conversation with me be kept absolutely confidential.

ORIGINAL SIGNED BY W. E. BEALL

W. E. Beall

(Telegram - Boeing to Toolco re B707-331s, 7/21/59)

DC74

K 574620 LONG PD AR=TRN PAS RENTON WASH 21 737PNC:

HUGHES TOOL, C H PRICE:

REPORT DELIVERY SOON AS POSSIBLE=

VICE PRESIDENT HOU=

6-1100-60-134

C SUBJ PURCHASE AGREEMENT NO 9 BETWEEN HUGHES TOOL  
COMPANY AND BOEING AIRPLANE COMPANY DATED MARCH 19 1956,  
AS AMENDED RELATED TO BOEING MODEL 707-331 AIRCRAFT  
& YOU HAVE REQUESTED BOEING'S CONSENT, AS REQUIRED BY  
ARTICLE 21 OF THE ABOVE REFERENCED PURCHASE AGREEMENT

DX 170

WESTERN UNION

NO 9 PURCHASE AGREEMENT, TOGETHER WITH ALL LETTER AGREEMENTS  
RELATING TO AMENDMENTS SUPPLEMENTAL AGREEMENTS  
AND MODIFICATIONS THEREOF, INCLUDING CHANGE ORDERS  
THERETO AND CHANGE PROPOSALS HERETOFORE ACCEPTED BY  
HUGHES, IS HEREINAFTER CALLED THE PURCHASE AGREEMENT,  
TO YOUR VOLUNTARY ASSIGNMENT TO PAN AMERICAN WORLD  
AIRWAYS INC OF SIX 767 OF THE EIGHTEEN 767 BEING  
MODEL 707-331 AIRCRAFT COVERED BY THE PURCHASE  
AGREEMENT, IN ACCORDANCE WITH THE TERMS OF YOUR LETTER  
AGREEMENT WITH PAN AMERICAN UNDER DATE OF JUNE 19 1959,

(Telegram - Boeing to Toolco re B707-331s, 7/21/59)

A COPY OF WHICH YOU HAVE FURNISHED TO US.  
 BOEING HEREBY GRANTS SUCH CONSENT, BOEING HEREBY  
 RELEASES THE HUGHES TOOL COMPANY FROM ALL OF ITS  
 OBLIGATIONS UNDER THE ABOVE MENTIONED PURCHASE  
 AGREEMENT WITH RESPECT TO THE SIX /6/ AIRCRAFT REFERRED  
 TO IN SAID LETTER AGREEMENT, AND ALSO RELEASES THE  
 HUGHES TOOL COMPANY FROM ALL LIABILITY WITH RESPECT  
 TO ONE-THIRD /1/3/ OF THE AGGREGATE PRINCIPAL AMOUNT  
 OF THE NOTES /DESIGNATED PROMISSORY NOTES C&D, AND E,

32714

1270 (1-51)

WESTERN UNION

DATED MARCH 6, 1959/ ISSUED BY HUGHES TOOL COMPANY TO  
 BOEING WITH RESPECT TO INSTALLMENT PAYMENTS ON MODEL  
 707-331 AIRCRAFT, AND WITH RESPECT TO ONE-THIRD /1/3/  
 OF THE INTEREST ACCRUED ON SUCH NOTES FROM JULY 1, 1959  
 TO THE DATE HEREOF.

IT IS ASSURED THAT HUGHES WILL PROMPTLY PAY TO BOEING  
 ALL FUNDS RECEIVED FROM PAN AMERICAN AS A RESULT OF SAID  
 ASSIGNMENT TO THE EXTENT REQUIRED TO MEET THE  
 OUTSTANDING NOTES/INCLUDING INTEREST/ AND OBLIGATIONS OF

32715

1270 (1-51)



DX 170, page 3  
(Telegram - Boeing to Toolco re B707-331s, 7/21/59)

## WESTERN UNION

NOTES TO BOEING PERTAINING TO MODEL 707-131 AND MODEL  
707-331 AIRCRAFT, EXCEPT TO THE EXTENT SUCH NOTES AND  
OBLIGATIONS HAVE BEEN RELEASED AS ABOVE PROVIDED YOURS  
VERY TRULY

BOEING AIRPLANE CO T L SPALDING MANAGER CONTRACT  
ADMIN==

132 JUL 21 PM 8 54

32716

COVERDALE &amp; COLPITTS

120 WALL STREET

NEW YORK 5. N. Y.

March 13, 1959

From Mr. Lachin:

In accordance with your instructions, we will do everything possible to complete the first phase of our study by the end of March so that the investment bankers can then hold preliminary discussions with insurance companies and others respecting the financing program. We understand that the closing of the financing is scheduled for June 1st.

DX 218, page 2

(C. &amp; C. Letter to Leslie re TWA Financial Forecast, March 13, 1959)

We propose that our compensation for this engagement be calculated at our standard rates which are as follows:

For services of staff engineers - within the range of \$125 to \$175 per day

For services of partners - \$300 per day

For clerical, stenographic and other work by our nonengineering employees - book payroll cost plus 50 per cent

For services of temporary employees used on this engagement, if any - payroll cost plus 50 per cent

For out-of-pocket expenses incurred directly in connection with this engagement - at cost

We propose to render monthly bills calculated as described above, and payable within 30 days.

At this early date on the study, we cannot determine the amount of our work which will be required in connection with your financing program. Using our experience with other studies of a generally comparable nature, we estimate that our total billing may be of the magnitude of \$25,000.

This description of our proposed engagement is intended to be in accordance with our conversations on the subject; if it is not, please let us know.

We thank you for the engagement.

Very truly yours,

Edward L. Wemple

bcc: JES  
AFT

TRANS WORLD AIRLINES, INC.  
380 Madison Avenue  
New York City

(A)  
25

DX 219, ~~219~~

N.S.  
44  
51  
61  
70  
61  
35  
N  
-  
C  
85

FINANCIAL FORECAST  
  
WITH JET AIRCRAFT  
  
1958-1962

CONFIDENTIAL



Prepared by:

Trans World Airlines  
Finance Department

A. V. Leslie  
Sr. Vice President & Treasurer

December 1, 1958

D 1600

CONTENTS

SECTION	I	Basic Forecast Assumptions
	II	Cash & Balance Sheet
	III	Operating Results System Domestic International
	IV	Property & Equipment Expenditures
	V	Revenue Forecast
	VI	Statistical Data



D1691



W  
A  
R  
.  
1  
9  
5  
8

**FIVE YEAR FORECAST**

**1958 - 1962**

**SECTION I**

**BASIC FORECAST ASSUMPTIONS**



**D-1602**

DX 219, page 4  
(TWA Financial Forecast 1958-1962, 12/1/58)

## FINANCIAL FORECAST FOR YEARS 1958 - 1962

### Basic Forecast Assumptions



### I EQUIPMENT

- A. Jet Aircraft - 14 B-707-131 assigned to Domestic mixed service; 18 B-707-331 of which eight are assigned to Domestic mixed service and ten to International mixed service; 30 CV-880 assigned to Domestic all first class service. Delivery schedule summarized on Schedule IV-A.
- B. Present Equipment - The forecast reflects the retirement of the DC-4's, L-049's, L-1049A's, L-1049G's and Martin fleets by the end of 1960. No provision is made in the forecast for the sale or lease of these aircraft. Retirement schedule summarized on Schedule VI-C.
- C. Leased Equipment - The L-1049H leased aircraft will be operated in Commercial and MATS Charter for the duration of the current lease agreement. It has been assumed the leases will not be renewed past their termination dates.

### II FINANCING

- A. Jet Aircraft Program - It has been assumed that TWA would purchase the jet aircraft and related spare parts and inventory from the Hughes Tool Company on conditional sales contract at 100% of the cost to TWA. Repayment would be in equal monthly installments over ten years, commencing with the first month of schedule service for each fleet, plus interest at 4% on the unpaid balance.
- B. Fuel Systems & Storage - Jet fuel storage and dispensing facilities acquired in 1959 and 1960 are 100% financed. Basic terms include ten year repayment with interest at 4 to 4-1/2% on unpaid balance. Facilities at several locations are amortized without interest charges.

### III INCOME STATEMENTS

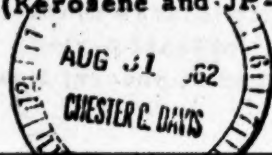
- A. Revenues - No change in the Domestic fare level presently in effect other than those changes effected in October 1958. It has been assumed that all fares in the current level due to expire will be extended throughout the forecast period. International first class fare levels will be maintained at present level, however, there will be no berth or sleeper seat

- 1603

service on jet aircraft. After April 1, 1960 there will be one class of service replacing the present tourist/economy service at a yield of approximately the same as the weighted average of these yields experienced in 1958. All other revenues have been assumed at present rate levels.

## B. Operating Expenses -

1. Direct Flying Expenses - In general, expense rates for projecting costs for piston engine aircraft now in service were based on actual experience for the year ending June 30, 1958 with the exception of those areas commented on below. Jet aircraft operating data, on which cost projections were based, was supplied by TWA's Staff Engineering and Maintenance Departments and is the result of their analysis and interpretation of manufacturers estimates for operating jet aircraft on TWA's routes and under TWA's proposed operating policies and procedures.
  - a. Salaries & Wages - Flight crew salary expense was based on rates of pay stipulated in current flight crew contracts plus a percentage increase for contracts now open. (Pilots increased 6% for contract expired August 1, 1958.) A contract with the Flight Engineers was signed July 29, 1958 which extends through 1959 and covers pay rates for operating jet aircraft. It was assumed that pilots pay for operating jet aircraft will be based on current type contracts with such factors as contractual speeds and gross weights estimated. Our estimates were based on the recently signed flight engineers contract and its normal relationship to pilots pay elements and, also taking into consideration Eastern Airlines pilot contract which covers jet pay provisions.
  - b. Travel Expense - Flight crew travel expense was based on actual experience rates and then adjusted to reflect a 50% increase in flight engineers travel allowance to incorporate their new contract provisions. Flight engineer and pilots travel allowance are now at the same rates and no increase is anticipated for pilots.
  - c. Aircraft Fuel and Oil - Aviation gas and oil expense was based on current prices and experienced fuel consumption by type of aircraft. These prices include the recent reduction in Domestic aviation gas of approximately 1-1/2 cents per gallon. The average price per gallon for kerosene used in jet aircraft was based on bids received by TWA. The federal tax on aviation gas, which is now 2 cents per gallon for fuel used in the U. S., has been estimated to increase to 3 cents per gallon effective July 1, 1959 and to include jet fuel (Kerosene and JP-4) which is not now taxable.



D 1604

# Transatlantic Traffic Slump Continues

By Glenn Garrison

New York—North Atlantic airlines are moving into their winter off-season with little hope of a sharp increase in traffic to offset last summer's slump, which resulted in an increase of only 3% in scheduled passengers in the face of a 37% increase in capacity.

Last year at this time, when most of the carriers were operating large-scale jet fleets for the first off-season period, bookings were reported way up for the winter months, in some cases 50% and more (AW Nov. 7, 1960, p. 40). As it turned out, the North Atlantic airlines carried 35% more passengers in the final quarter of 1960 than in the previous like period. Capacity, however, rose 53% for the quarter.

AN AVIATION WEEK survey of current bookings for the off season indicates a level generally only slightly higher than last year at this time. Capacity will be up again, but not as drastically as during the last off-season.

Bookings are less reliable than they used to be as an indicator of traffic because of the tendency to book later. Airlines report that the figures often change for the better a few days before particular flights. However, little of the optimism evident last year—when the 17-day excursion fare was going in for the first time—seems reflected as this winter season goes into its second month.

The slump in traffic growth, critical when linked with the giant increase in seat capacity, began last May. For the

four peak season months, June through September, the scheduled North Atlantic airlines carried 917,754 passengers, up from 884,152 in the summer of 1960. Capacity rose from 1,273,455 seats to 1,743,085, for a load factor in both directions of 53% for the 1961 period. This was a drop from a similar load factor in summer, 1960, of 68% in both directions.

First-class traffic was hardest hit, dropping 34% to a total of 95,225 passengers for the four months. Economy passengers totaled 822,529, a 9% increase.

For the nine months ending last September, scheduled traffic was up 8% to 1,484,674 passengers, and scheduled capacity was up 41% to 2,898,560 seats.

## Charter Operations

Charter operations, which present some controversial aspects, zoomed during the summer period with an increase of 73% among the scheduled carriers to a total of 153,383 passengers. Some airline officials, proponents of lower scheduled fares, feel that the charter business is a way of begging the question and offering lower fares through the back door. Also, some question exists as to whether charters are accurately reported to International Air Transport Assn. In this view, an indeterminate number of charter passengers end up in the scheduled passenger totals.

Among the carriers reporting charters for June, July and August were British

Overseas Airways Corp., with 202 bound legs; Lufthansa, with 72; KLM with 74; Pan Am, with 163; SAS, with 32; and TWA, with 42.

Last summer's results, both in capacity offered and traffic carried, varied considerably among the individual carriers. Some examples:

- Pan American showed a 14% increase in passengers for the four months, a total of 191,071. Capacity rose 4%. Pan Am estimates its capacity for the winter season will be about 29% greater than last winter's. Bookings for the weeks beginning Oct. 26 are 13% above of bookings for the same period last year.

- TWA traffic dropped 18% from previous summer to a total of 101,605 passengers. Capacity was up 8.2% to 196,190 seats. Among the unfavorable factors cited by TWA are the increased transatlantic capacity of foreign carriers and their jet fleets; entrance of new carriers in the market, and competition from supplemental carriers operating charters under blanket exemption. TWA's capacity this winter will drop slightly from last year: from about 3,200 weekly seats in each direction beginning Nov. 1, to 2,100 seats. At the same date, bookings for November were running about 7% higher and bound and 5% lower westbound. TWA started promoting the off-season earlier this year than last.

- BOAC traffic also was down slightly from 133,475 to 127,728 passengers. Capacity was up 23% for the 4 months. For the entire winter season BOAC plans to offer about 85,061 bound seats, an increase of about 2%. A major unfavorable factor cited by BOAC is the fly-American directive of U. S. government departments. As BOAC was getting established in U. S. points such as Washington-Baltimore. The British carrier expects to reduce its transatlantic capacity this summer by 7%, shifting Boeing 420 jet equipment to other routes.

- KLM increased its capacity by 1% to 129,106 seats. Traffic rose from 900 to 67,678 passengers. Capacity for the winter season will run about 2.105 seats a week, up from about 2.105 on the average last year. Bookings for the winter are about the same as last year, but KLM says it really is too early to estimate with any exactness.

- Lufthansa increased its traffic by 1% to 57,331 passengers and increased capacity by 72% to 108,236 seats. Lufthansa feels an improvement in the market is absolutely dependent on improvement in the political situation. The airline is particularly hard hit

## North Atlantic Passenger Traffic

June Through September, 1961

	Flights	Seats	Passengers	Load Factor
Air France	1,012	143,186	71,463	50%
Air India	169	22,256	7,780	35
Alitalia	595	78,370	42,061	54
BOAC	1,964	249,958	127,728	51
Canadian Pacific	316	37,232	17,319	47
El Al	271	32,981	21,507	65
Iberia	127	14,374	4,856	34
Irish	325	40,015	25,774	64
KLM	1,129	129,106	67,678	52
Lufthansa	764	108,236	57,331	53
Pan Am	2,748	340,030	191,071	56
Qantas	69	6,382	2,945	46
Sabena	503	70,690	30,949	42
SAS	878	113,727	63,387	56
Swireair	529	67,824	32,816	48
Trans-Canada	730	92,528	51,484	56
TWA	1,433	196,190	101,605	52

Totals: 13,562 1,743,085 917,754 53

Note: Pakistan International Airlines began transatlantic service June 16. Figures not available.



on the Berlin situation. Lufthansa, with BOAC and other foreign carriers, cites the fly-American program as a particular source of traffic. The German airline's capacity this year will be up about 41% over last year's. Bookings are running about 40% above last year's level. Lufthansa carried 40% more passengers than last year's total of 42,016. Capacity increased to 78,370 seats. This winter's bookings will be about 51% greater than last year's. Bookings were up about 40% of Nov. 3. Alitalia's big capacity of last summer coincided with

the introduction of a full jet fleet; next summer's increase will be considerably less.

• SAS registered a 15% increase in traffic to 63,387 passengers. Capacity was up 9% to 113,727 seats. SAS plans to offer about the same capacity this winter as last. Bookings are reported as slightly up over this time last year.

• Air France increased its traffic from 59,272 to 71,463 passengers. Scheduled capacity rose about 49% to 143,186 seats. Bookings for the rest of 1961 and the beginning of 1962 are running about 10% ahead of last year's.

## Controllers Question Future Value of Various Air Traffic Measures

By David H. Hoffman

Air traffic controllers have to question whether there is a need for any future control system for air traffic that can only print flight progress strips, devices designed to preclude conflict courses, and the present en route airway structure.

Members of these devices came during the Air Traffic Control Assn.'s meeting here when controllers gathered to discuss an ATC system that might be reshaped by recommendations of the Project Beacon task force. But details of the Beacon study, then four months overdue, were given to most controllers at the Nov. 1 ATCA conference.

In an informal workshop on "automatic evaluation," controllers made it clear that any plan to install additional "stepping" computers similar to Remington-Rand Univacs now in use at six Federal Aviation Agency Route Traffic Control Centers (RTCCs) would not win solid support. Their objections:

• The expense of leasing additional computers to print, but not update, progress strips would divert funds from projects aimed at developing semi-automatic ATC systems with greater capacity.

• The use of flight progress strips would result in reconciling with the existing use of radar in controlling air traffic. Satisfied with the results of the data, controllers want to focus attention on radar scopes rather than strips printed by a computer.

• The idea of feeding the computer data, stuffing the flight progress strips into holders and distributing the strips to numerous center sectors, in some cases, requires more personnel than would be required to print and distribute the strips by hand.

At the workshop, controllers recommended that FAA re-evaluate what constitutes a legal procedure within an ATC facility. They asked, for example, if it still served a useful purpose to require a written record of the control instructions issued to every flight. Would it be necessary to take motion pictures of each radar scope if radar resulted in the elimination of flight progress strips? And would not such requirements, if imposed, lessen the efficiency of the ATC facility?

Automatic conflict prediction—a system for warning a controller well in advance of any clearance that might steer an aircraft toward a collision—also was downgraded by controllers here. According to Horace Adams of FAA's ATC operations group at the Agency's Atlantic City, N. J., test center, the need for conflict detection devices decreases as radar control is substituted for manual control of air traffic. Visual presentations offered by radar, he said, make it relatively easy for a controller to predict en route conflicts without the aid of a sophisticated computer.

Automatic conflict prediction was to be the third function entrusted to the Data Processing Central semi-automatic traffic control system, which FAA once hoped would become operational in Boston during November, 1962. But FAA officials from the National Aviation Facilities Experimental Center said here that the prototype DPC system, according to present plans, will be retained at NAFEC and used to test new traffic control techniques and some components.

It would not, they said, be installed in an operational environment as a complete system. One of the six General Precision/Librascope computers purchased by FAA for use in DPC will be shipped to the Atlanta ARTCC sometime in Fiscal 1963 (AW Aug. 28,

cording to Lyle H. Ditzler, acting chief of field operations analysis in the Agency's Air Traffic Service.

FAA now looks upon automation as an "assist to the controller," not as the "salvation for all our problems," Ditzler told the forum. The concept of DPC, Ditzler added, must be "changed considerably" because it is based on the "old system" of pilot position reports and estimated times of arrival over radar checkpoints.

Controllers and airline industry representatives here had little praise for FAA's three-layer airway structure, which went into operation on April 1. According to these users, the intermediate altitude route system that extends from 14,500 to 24,000 ft. is a "strangling block" for jets climbing to and descending from the high-altitude en route work above 24,000 ft.

Intermediate and high altitude airways often are not defined by the same VOR radials, controllers complained. Pilots added that their transitions through the intermediate airway structure involve cluttering the cockpit with unnecessary charts. As more high-speed jets are scheduled over short-range route segments, this problem is aggravated because pilots have only two choices: climb to altitude and then descend shortly thereafter, or remain at low altitude where fuel consumption is high and slower piston-powered transports present a traffic control problem.

### Computer Use

According to Capt. J. D. Smith, director of air traffic control for United Air Lines, United is using a computer to evaluate just how high its jets should fly on short-range route segments. In this evaluation, fuel consumption is being balanced against time to climb and descend, he said.

Controllers here also expressed concern that the qualifications demanded of would-be controllers may be relaxed in the future to attract sufficient personnel. On this point, Jacob Meisel, chief of personnel programs division, said that the backlog of qualified candidates already on the civil service job was adequate to keep controller strength at authorized levels for the next three to four years.

FAA is tackling the problem of controller stress, anxiety and fatigue in two ways, reported Dr. David Trites of FAA's Civil Aeromedical Research Institute. He said the Agency was doubling its testing efforts to ensure that only controllers able to withstand "stress-causing conditions" are hired in the first place. In addition, FAA is studying controller fatigue in an effort to pinpoint and eliminate the causes. Dr. Trites made it clear, however,



# Capacity Overshadowed Traffic On North Atlantic In 1961

Load factor dipped to lowest level in years  
as 17 carriers flew the equivalent of 14,700  
flights without a passenger aboard

By ERIC BRAMLEY

THE SMALLEST passenger traffic increase on the North Atlantic in 10 years, coupled with the biggest jump in capacity, pulled 1961 load factors down to the lowest point in postwar history.

The 17 IATA passenger-carrying airlines—two U.S. and 15 foreign flag—carried 1,919,466 passengers on regular schedules, an increase of 9% over 1960. Seating capacity jumped 36.7%. Charter flights handled an additional 256,478 passengers.

Bright spots in the picture were cargo, up 36.3%, and mail, up 26.2%.

AIRLIFT's analysis of scheduled flights from the U.S. and Canada to Europe shows that 1961 was a year in which: Load factor dropped an amazing 13 points, from 64.2% in 1960 to 51.2%. This was the first time in at least 10 years that the figure had been less than 60%. First-class was a dismal 37.5%; economy service produced 54.1%.

More than 1 million new seats were offered for sale, but the passenger increase amounted to only 158,694. Thus, for every new passenger, more than six new seats were added. The airlines flew with 1.8 million empty seats, which is equal to operating 14,700 flights with no passengers at all.

Six out of every seven passengers used economy service—67.2% against 12.8% first-class.

First-class traffic dropped for the first time since 1954, and the decrease was a sizeable 20.1%.

The U.S. share of the market continued to shrink. More than two out of every three passengers used foreign lines.

Pan American continued to lead in all classes of traffic. Canada-Europe operators fared somewhat better than U.S.-Europe, showing a 57.5% load factor. On U.S.-Europe routes, the traffic increase was only 7.8%. There were 1,644,306 passengers and 3,286,294 seats, for a 50.3% load factor.

## 61% fly non-U.S. airlines

Foreign lines had 68.2% of the total passenger market, from 65.3% in 1961. Excluding Canada (where U.S. airlines do not compete) the foreign carriers had 63.1% of

U.S.-Europe against 36.9% for PAA and TWA. In 1960, the division was 60.2% vs 39.8%.

In 1960, when jets were replacing pistons, the airlines increased their seats by 32.3% but the number of flights decreased 3.9%. Last year, however, it was a case of adding jets to jets, and the 36.7% increase in seats was accompanied by an 11.6% increase in flights.

Pan Am increased its passenger traffic 9.7% in 1961 and had 24.4% of the U.S.-Europe market—one out of every four passengers. Its seating capacity increased 41.4%. In 1960, Pan Am had 23.9% of the market. TWA experienced a 14.7% traffic decline last year while seats increased 6.8%, and its share of the market fell from 15.9% to 12.6%.

## Foreign carriers lead in cargo

Cargo totaled 69,096.2 tons; 61.4% of it was carried by foreign lines and 38.6% by PAA, TWA and Seaboard World. Excluding Canada, the division was 58.5% vs 41.5%. The three U.S. lines maintained a big lead in carrying the mail, handling 71.9% of the total and 75.6% of U.S.-Europe.

Following is each carrier's share of U.S.-Europe passenger traffic (Canada excluded) in 1961:

Pan Am .....	24.4%	Alitalia .....	5.2%
TWA .....	12.6	Swissair .....	4.4
BOAC .....	11.4	Sabena .....	3.7
Air France ....	9.6	Irish .....	2.7
Lufthansa .....	7.4	El Al .....	2.6
SAS .....	6.9	Air India .....	.9
KLM .....	6.8	Iberia .....	.6
Qantas .....	.6		

Many reasons have been advanced for 1961's unexpected slump. Generally listed as contributing factors were unsettled conditions in Europe, U.S. recession, and curtailing of dollar expenditures abroad. The IATA operators are now convinced that 1962 results will be much better, with estimates of passenger growth running from 12% to 15%. ■

(TWA Board Meeting, Aug. 16, 1961 - Report of System General Manager)

At the July Board of Directors meeting the question was raised as to where TWA's revenue production problems were concentrated. This report will summarize and the attached exhibits illustrate the areas of competitive revenue deficiency.

Chart No. 1 is the most recent competitive load factor comparison on selected non-stop jet segments. These are the segments upon which we have relatively accurate information through exchange of figures with AAL, UAL and CAL. This comparison indicates that our most serious problem is between New York and California where we have consistently trailed behind AAL, and either about the same or ahead of UAL. Secondly, Chicago to Los Angeles and San Francisco are the other markets where our penetration must be improved. Note that between Baltimore and Los Angeles TWA leads in both directions and has done so consistently.

To further isolate the problem, Chart No. 2 shows a comparison of UAL, TWA and AAL historical load factors from New York to Los Angeles.

Chart No. 3 gives a direct comparison between TWA Flight 5 at 9:30 AM and AAL Flight 1 at 9:45 AM, both non-stop Boeings to Los Angeles. This AAL flight continues to surpass our parallel Flight 5. This chart illustrates one of the problems as it reveals AAL's better ability to feed their flight at Idlewild from their regional route pattern in the northeast.

I would like to enumerate some of the reasons contributing to our competitive problem with AAL, and to a lesser degree UAL, in the transcontinental non-stop markets.

1. The lack of a new modern terminal at Idlewild is becoming increasingly damaging to our business. As an example, we annually make

an on-board survey of our transatlantic passengers, and the most recent survey conducted the last week of June and first week of July this year contained write-in comments from 12% of the passengers criticizing our terminal facilities at Idlewild. These 12% constituted some 300 passengers and compare with adverse comments in last year's survey of 4%. This clearly indicates the adverse passenger reaction to our present temporary facilities, and undoubtedly places TWA at a competitive disadvantage.

2. The success of AAL's "Astrojet" advertising campaign built around their new fan engines has been most successful. Transcontinental schedules by AAL with the "Astrojet" are faster than TWA's Boeing 131 schedules. I previously referred to our problem with AAL's Flight 1 which leaves at 9:45 AM, 15 minutes later than our Flight 5, and arrives in Los Angeles at noon, 10 minutes ahead of us.
3. The ability of AAL in the east and UAL in the west, because of their route structure, to develop and concentrate on scheduling maximum internal connecting service to their long haul jets.

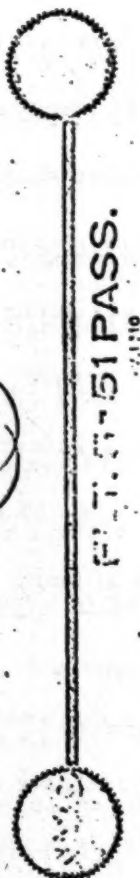
Aside from our position in the transcontinental jet markets, TWA's competitive position compares favorably. If we had load factors equal to our competitors on these major segments, our industry load factor would be equal to AAL and ahead of UAL.

As you know, TWA missed its domestic revenue forecast for the month

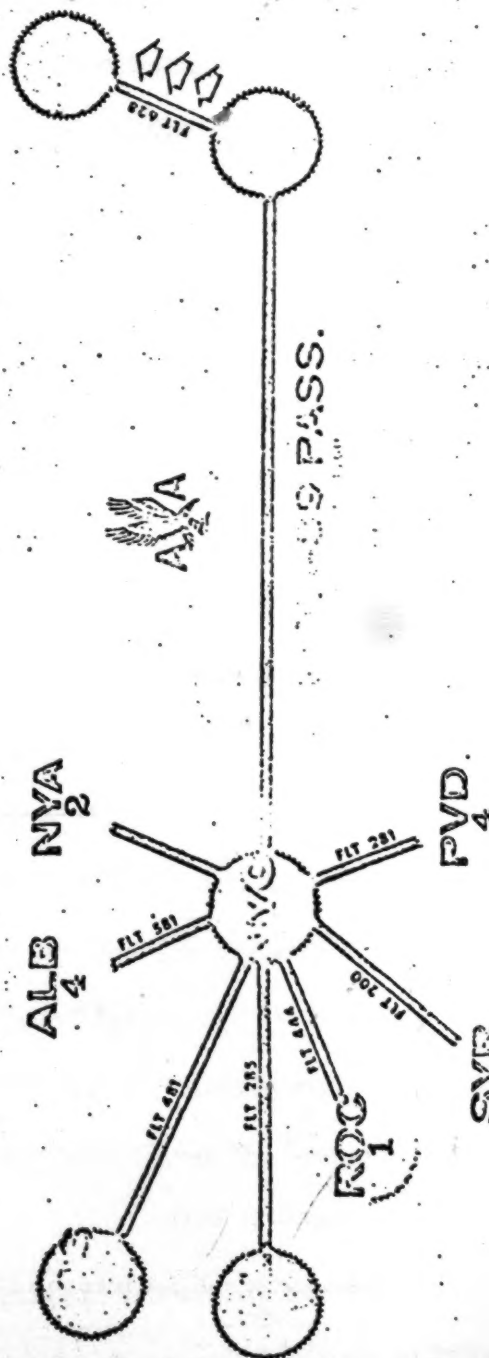
# "SOURCE OF PASSENGERS"

NYC-LAX

JULY 1-21 1961



VERSUS



CIVIL AERONAUTICS BOARD

1964 Budget Estimates

Chairman's Statement  
Before House Subcommittee on Appropriations  
January 29, 1963

Mr. Chairman and Members of the Committee, the Civil Aeronautics Board is here on its annual pilgrimage to tell you what it has done and is doing with the money Congress appropriated last year and what it needs for waging the good fight in the coming year. Before launching into the details of our accomplishments and future needs, however, I believe it would be valuable to refresh your recollection and bring you up-to-date on some salient facts and figures of the industry the Board is charged with regulating and promoting.

There are 159 direct and indirect air carriers holding economic authority from the Board. These break down into 53 certificated specific route operators, 15 supplemental air carriers, and 91 domestic and international air freight forwarders. The certificated specific route operators include:

11 trunk carriers performing mostly long-haul and medium-haul domestic services, and a majority of them also serving some foreign points;

13 local service carriers operating within the Continental United States;

2 local service carriers operating in Hawaii;

9 carriers operating in Alaska;

3 helicopter carriers;

5 all-cargo carriers;



(Statement of CAB Chairman Boyd, Jan. 29, 1960)

1 carrier operating primarily between the United States and Puerto Rico;

4 U.S.-flag carriers operating internationally and flying no routes within the Continental United States;

5 other small carriers, three of which are not currently operating scheduled services.

The certificated route air carriers provide regularly scheduled service to 950 U.S. and foreign points, including 234 in Alaska. Their operating statistics for the year ended September 30, 1962, show that they:

Carried a total traffic of 6.1 billion revenue ton-miles;

Transported 62.9 million passengers for a total of 45 billion revenue passenger-miles;

Transported 1.3 billion ton-miles of cargo;

Had 2,033 aircraft which provided a capacity of 83 billion scheduled available seat-miles;

Had 2.9 billion dollars invested and employed 171 thousand persons;

Collected 3.38 billion dollars in revenue, and spent 3.25 billion dollars;

Paid 58 million dollars in various taxes;

Collected 187 million dollars in passenger transportation taxes for the Federal government.

These are impressive statistics and they also reflect a significant growth over the preceding year. We only wish that the profit picture were as rosy but it is not. The fact is that the certificated route industry earnings for the year ended September 30, 1962, provided a return of only 3.97 percent on investment. The eleven domestic

trunklines reported a composite return on investment of only 2.83 percent. Nevertheless, the picture was a bit brighter than that of the preceding 12-month period when the return on investment for the industry was 3.15 percent and for the eleven trunklines 2.16 percent. For the current year, net income was 6.6 million dollars as compared with a net loss of 4.1 million dollars in the preceding year. These are encouraging changes in the generally declining trend of earnings since 1955.

The villain in the poor profit picture continues to be excess capacity. Although the industry has experienced sizeable increases in operating costs per seat-mile flown, the break-even load factor is currently actually below the level which obtained in the good 1954-1955 period. This is so because the operating cost increases have been more than matched by the aggregate impact of several fare increases. Moreover, although traffic growth has fallen considerably below the industry's expectations, it has nevertheless continued. The inescapable conclusion appears to be that the disparity between current earnings and those of earlier good periods is essentially attributable to the substantial decline of passenger load factors as a result of excess capacity. And it should be noted that substantial numbers of jet aircraft continue to be delivered pursuant to firm commitments entered into during more optimistic times.

As we said when we were here last year, the attack on this problem must proceed on many fronts, with the Board's actively exercising its assigned regulatory and promotional roles. We have been working closely

(Statement of CAB Chairman Boyd, Jan. 29, 1960)

with the airlines on such problems as no-shows, pooling of facilities and reduction of unnecessary and costly cabin frills to effect a reduction of operating costs. We also have underway a broad reassessment of the overall pattern of air carrier operation in this country. No one would dispute that the size of the jets, their operational characteristics, and the burdensome cost of their acquisition, may entail a revolution in the accepted concept of adequate and efficient service. In this connection I might note the very recent Supreme Court decision in the Pan American-Grace anti-trust case which, among other things, indicates that the Board's power to affect route realignments may be greater than heretofore thought. The Board is also pushing a program designed to streamline the provision of air service through the use of centrally located regional airports. This requires a delicate evaluation of the relative public interest in the availability of airline services at individual communities as compared with the establishment of a service framework which will permit the economical use of larger aircraft and more frequent services. On the revenue side of the ledger, we are continuing to encourage experimentation with promotional passenger fares to increase traffic and we have greatly expanded our efforts in both the costing and pricing areas of air freight movements looking toward the long awaited breakthrough that could mean so much to both the shippers and the airlines.

I should now like to turn to our appropriation request for Salaries and Expenses. We are requesting \$10,800,000, which is an increase of \$1,300,000 over last year. \$456,000 of this increase is attributable to the 1962 Pay Act

# Excess Seat Problem Will Grow This Year

Jet deliveries to expand trunks' surplus capacity, which depresses load factors, utilization rates.

By L. L. Doty

Washington—Excess capacity problems, which plagued the domestic trunkline industry during 1960 and held its annual profit to the low level since 1949, are now expected to continue through 1961.

As first predicted by *Aviation Week* (Dec. 28, 1959, p. 28), a slight increase in revenue passenger miles during 1960 was rapidly outstripped by a persistent rise in available seat miles, depressing the industry's average load factor and its aircraft utilization rates. Scheduled delivery of more than 100 additional turbojet transports during 1961 will magnify the surplus seat problem and threaten continuation of the steady drop in load factors that began eight months ago.

Revenue passenger miles during 1960 fell off sharply month-by-month to culminate in a modest 4% increase for the year, compared with a 15% jump in 1959. The dwindling traffic figure was most pronounced in November and December when revenue passenger miles showed 3% and 4% decreases respectively.

Available seat miles rose steadily during the year, although the upward trend was arrested in November and December when the monthly volume was held at an almost constant level. Nevertheless, in each of the two months, the industry load factor took its worst drop of the year.

## Unrealized Potential

The current situation suggests that the domestic trunkline industry is not achieving the full utilization potential of its fleets. In addition to retiring a number of piston-engine aircraft into inactive status, the industry had held utilization of its turbojet fleet to approximately 8 hr., a figure which includes such activities as flight training and charter operations. Highest rate has been attained by Continental Air Lines, which has averaged a 10.58-hr. utilization since it began service with its Boeing 707 fleet.

During 1952, when only a small number of jets are scheduled for delivery, the industry will have a short breathing spell during which the gap between traffic growth and capacity increases can be narrowed.

In 1953, however, the problem will loom again when production of medium-range jets will create a new rash of aircraft deliveries for scheduled serv-

cession of the past six months and promote a resumption of normal traffic growth. As previously pointed out (AW Feb. 28, p. 38), airline business is extremely sensitive to the fluctuations of the Gross National Product, which, after a 15% increase in the first quarter of 1960, fell 1.5% in the third quarter and showed no change in the final quarter of the year.

In view of the GNP trend last year, coupled with a decline in personal income in the last half of 1960 and a decided drop in corporate earnings beginning early in the year, airline traffic made a remarkably strong showing during 1960. Contrasted with 1960's 4% gain, revenue passenger miles suffered a 0.3% decline during the recession year of 1958.

## Industry's Future

This record suggests that should the general economy resurge early this year, airline traffic growth may be quickly restored to prevent a further depression of load factors. Thus, the immediate future of the trunkline industry depends on an early general economic recovery, plus continued attempts to generate new traffic and a reshaping of the present pattern of airline routes—a move that began last year with the proposed merger of Capital Airlines into United Air Lines.

First class revenue passenger miles were hit hardest by 1960's traffic recession. Volume for the year declined 6%, and in only two months of the year did first class revenue passenger miles register an increase. The drop in December was 19%, in November it was 16%.

As a result, the industry was forced

seat miles for the industry had declined 0.7%. This reduction began in June when, for the first time, the volume of coach seats sold accounted for more than 50% of all seats sold. In October, first class traffic returned to its dominant position by a small margin.

First class load factors have declined consistently for the last 15 months. In December, the industry first class load factor dropped 4.4 points to a low 51%, compared with a 1959 average of 60%. First class load factor for 1960 was only 56%, compared with 59% for all types of traffic.

## Coach Growth

On the other hand, coach traffic continued to climb spectacularly, filling by only a fraction to match first class traffic in revenue passenger miles for the year. Coach traffic showed a 17% gain for the year with a 63% load factor, despite a 19% increase in available seat miles. However, one disturbing factor appears in the coach record: load factors, while relatively high, registered an increase in only four of the last 14 months.

Generally, it is difficult to pinpoint the traffic depression to any particular market or geographical area with one exception: carriers serving the Florida market from East Coast business centers have consistently failed to generate sufficient traffic to maintain high load factors. Traffic activities of other trunklines vary widely.

An analysis of airline business during December, for example, shows that only three of the 12 trunklines were able to report an improvement in revenue passenger miles over December, 1959. United led the industry with a 30% increase in total revenue passenger miles. The airline reported a 60% increase in coach traffic and a 3% increase in first class traffic.

Brant ended the month with a 4% traffic gain. The carrier's emphasis on coach traffic since its acquisition of turbojet equipment is illustrated by a 107% increase in coach traffic coupled with a 21% decline in first class traffic. In contrast, Delta reported a 16% rise in first class business compared with a small 4% coach increase for a total 10% gain in all categories of traffic.

Because of its current engine strike, Northwest Airlines' business fell off 23% and available seat miles were sliced by 20%.



35% decrease in first class traffic and a 2% increase in coach traffic. However, the airline ended the year with a 12% increase in total revenue passenger miles (see 1957). American says the 6.4-billion revenue passenger miles flown in 1960 is a world record.

Effect of turbojet equipment on cost productivity is illustrated by American Airlines' experience during two full years of Boeing 707 operations. During that time the carrier's 707 fleet carried 5.1 million passengers a total of 4.8-billion passenger miles. By contrast, it took close to four years to accumulate the same traffic totals with the airline's fleet of 58 Douglas DC-7 transports—almost twice the size of the 707 fleet.

Big four carriers—American, Eastern, TWA and United—were generally more successful during December than the eight smaller trunk lines. Revenue passenger miles of the larger carriers declined only 2%, available seat miles about 4% and load factor fell from 66% in December, 1959 to 57% last month.

The smaller airlines reported an 5% drop in revenue passenger miles, a drop of 6% in available seat miles and a decline in load factor from 54% to 52%. The eight airlines showed a 2% increase in coach traffic, compared with a 26% increase in coach traffic registered by the Big Four.

Big question mark in the immediate future is the value of the Florida market to the seven trunklines which now serve the area with turbojet equipment. Eastern, National and Northeast, closely competing for traffic on East Coast routes into Florida, continued to report load factors substantially below the industry average. Although Eastern experienced a 11% decrease in revenue passenger miles in December, available seat miles were sliced 14% to raise the monthly load factor from 49% to 53.3%. National's load factor dropped two points to 50.9%, since a 12% reduction in available seat miles was offset by a 16% drop in revenue passenger miles. First class traffic of both carriers declined sharply, while coach traffic remained fairly stable.

Northeast Airlines, with a 47% load factor down one point from December, 1959—reported a 5% decrease in revenue passenger miles. The carrier's first class traffic jumped 20%, but coach traffic was down a severe 20.6%.

Although Continental's load factor fell from 53% in December, 1959 to 52% last year, the carrier's traffic dropped only 5%. Coach traffic was up 14%, but first class dipped nearly 16%.

TWA, which has had a 9.5-hr. daily rotation record with its Boeing 707-30 turbojet fleet and is now operating 11% of its schedule with jets, ex-

London—Failure of Rolls-Royce Tyne turbine disks, which was due to an obscure metallurgical problem, has forced Rolls-Royce to change the manufacturing process for the disk and to scrap 3,500 disks made prior to the incident (AW June 6, p. 43).

The disks involved included not only the last two high pressure compressor stages but all the turbine disks as well. The possibility of reworking the forgings was considered but was ruled out.

In the new process, both the disk profile and the material, ferritic stainless steel, REX 535, has been retained but the ductility has been raised nearly 15% by improving the steel quality and ensuring more hot working and better grain flow during reduction of the blank. Heat treatment techniques also have been modified.

The purity of the metal has been improved by switching to vacuum melting of the stock material, and the better grain flow has been achieved by considerably increasing the length-to-diameter ratio of the billet so that the reduction of the billet during forging involves more hot working. The forging program itself has been revised.

The failure proved to be one of the most perplexing problems that Rolls has encountered, finally reducing to a statistical problem involving scatter factors of the physical properties of the material. Although the decision was finally taken to scrap all the original disks, the statistical analysis predicted that less than one in 200 of the disks would be affected.

Major Tyne setback followed bursting of a disk on a test bed last May after 21,000 hr. of engine testing, including a comprehensive program of testing at elevated conditions. It coincided with the final stages of the re-engineering of the Tyne engine Vickers Vanguard and came within a few days of the aircraft's certification (AW Dec. 5, p. 41).

An inspection of every engine that had flown revealed one other disk with a crack radiating from the bore—with virtually the same origin as the burst disk—and all Vanguards were grounded.

Stringent investigations of the turbine disks followed, and "short life" engines were made available so that flight test programs with the aircraft could proceed.

Because the failure was difficult to reproduce, the investigations were protracted. Rolls' management decided to consult world experts and consultants from engine manufacturers, steel alloy makers and research centers before confirming the statistical nature of the problem.

Compressor and turbine disks are now in full production, using the new techniques and are being fitted to all new engines and as replacements for those engines running with short life disks. Engines with the new disks and modified up to the latest standard are now being delivered for installation in Vanguard and Canadair CL-44 aircraft.

7% increase in coach traffic during the month, but a 20% dip in first-class business gave the airline a 14% loss in all types of traffic handled.

There is a tendency to consider last month's midair collision over New York (AW Dec. 26, p. 26) as the chief reason behind December's poor record. Although it has been fully demonstrated that highly-publicized accidents have a decided but short-term effect on airline business, the December record appears to most observers to be a normal sequence to the dismal showing in November when traffic fell 3% and load factors dropped 2.7%.

Net result of the current situation will be continued stress on sales, marketing techniques and new means of generating traffic, all of which will intensify competition that has already reached a heated level. Services to passengers, source of one of the most rapidly growing cost factors in 1960, will be accelerated this year and will draw heavily on the resources of individual car-

riers from growing competition together with equipment transitional costs which are not leveling off as anticipated when jet services were first launched, will place new fiscal demands on an industry which generally has been denied the benefits of withheld profits as a means of bolstering working capital.

As a result, 1961 will not only prove to be a continuation of the transitional phase which began in late 1959 when the first visible sign of the end of mergers started to appear. Few carriers can run the risk of a load factor for an extended period of time, and most officials of major carriers have felt for some time that mergers are an inevitable solution to the financial problems since carriers are expected to meet during the next two years.

Despite the rash of merger rumors which persist throughout the industry, there are no firm discussions on mergers between any of the trunklines at this time other than the proposed combinations of United with Capital and TWA



REPORT TO DIRECTORS

At its last meeting, the Board of Directors requested that I prepare for its next meeting a report relative to the company's finances, the reasons for its present critical economic problems, steps being taken to solve these problems, and recommendations to the Board as to further steps which might be taken.

BACKGROUND OF THE PROBLEM

In my opinion, the present crises derives directly from (1) a general depression in the airline industry, (2) the weakness of TWA's financial and market positions relative to its two major transcontinental competitors and its principal transatlantic competitors, and (3) certain events of the recent past which have particularly affected TWA.

Dealing first with the domestic side of the picture, existence of an industry-wide depression requires no argument. Exhibit #1, from the New York Times of Sunday, September 24, 1961, shows that trunk airline profits, which aggregated \$63,000,000 in 1955, all but disappeared in 1960. 1961 may see their disappearance altogether barring some startling turnaround in the last quarter. For the first seven months the industry, excluding TWA, suffered a net loss of \$4,000,000. The slow months of the fall should aggravate this trend. The situation has become so grave that last month the Chairman of the Civil Aeronautics Board called all of the airline presidents to Washington to seek solutions to the problem.

In circumstances such as these, the weaker companies always are hurt the worst. Thus, TWA suffers more than American Airlines or United.

Exhibits 2 through 8, comparing TWA's domestic performance with that of American and United (Capital excluded) for the years 1951 through August 1961, reveal several significant facts:

(1) Although TWA's rate of growth has roughly matched that of American and United (Exh. 2), its revenues per ton mile have been much less than American's (Exh. 3A) and until recently its expenses considerably higher than United's (Exh. 4B). Its business has been less profitable than that of either of them (Exh. 5A, 5B).

(2) TWA's profit on domestic business has deteriorated since 1955 both absolutely and relative to that of American and United (Exh. 6). A notable exception was in 1959, when TWA did an outstanding job of utilizing its early jets in the transcontinental market and thereby achieved unusual profitability.

(Report to Directors of TWA-Oct. 13, 1961)

earlier than that of American and contrary to the trend of that of United (Exh. 2). Since the first of this year, TWA's domestic business has fallen less in relation to 1960 than has American's. United's has shown a diminishing gain over the prior year.

(4) TWA's percent of total trunk and big three revenue passenger miles slipped from its 1953 peak until 1959 when it reached a new peak. Thereafter it deteriorated sharply through the early months of 1961 (Exh. 7).

(5) TWA's load factors, which have been in a downward trend for most of the last 10 years, have slipped very sharply both absolutely and relative to those of the other two since 1959 (Exh. 8).

TWA's domestic pre tax profit of \$25.3 million in 1959 became a loss of \$1.2 million in 1960, a year in which its competitors still made substantial profits. Uncertainties regarding receipt of its 880 fleet increased expenses and interfered with orderly planning. Thus, TWA entered 1961 with a deteriorating domestic position and insufficient financial reserves to enable it without serious problems to weather an industry-wide depression while going through a major equipment program. A strike in February, the lack of a competitive terminal at Idlewild and the absence of a chief executive were complicating factors.

Some understanding of the causes of TWA's poor profit record is necessary to an intelligent consideration of possible remedies. However, a thorough discussion of such causes would unduly extend this report. Therefore, I shall limit myself to highlighting a few of such causes which bear on the course which should be taken now.

The Board is fully aware of TWA's history of absentee management which, among other things, reflected itself in a turnover of chief executives unique in the industry, thus depriving the company of consistent leadership or, at times, of any presidential leadership at all. This combined with inadequate financing and repeated periods of financial stringency have delayed and impeded orderly planning and have prevented the taking of needed action. Deteriorated interdepartmental relationships have been another result of the lack of leadership. Most importantly, the inability of the TWA management to plan and execute adequate long range equipment programs has prejudiced the company's success.

For many years, TWA's flying operations were more costly than those of its competitors (Exh. 9). One important reason was that TWA's Constellations were slower and more costly to operate than competitor's DC-6s and DC-7s. Attempts to operate at competitive speeds resulted in

substantially. With the advent of jets the costs of the Constellation have become increasingly less significant and TWA's costs have become more competitive. Despite the economic advantages of American's fan powered jets, TWA no longer operates at a substantial competitive disadvantage.

In passing, it should be noted that normal depreciation charges on the 1049Gs and 1649s (which have little earning power for TWA) exceed \$21,000,000 for 1961. Special yearend writeoffs on this equipment probably will increase the figure to \$36,000,000.

Until 1958, TWA had the highest rate of expenditure for advertising in the domestic industry (Exh. 10). Relative to its competitors, TWA depended for its business more on advertising than on performance. Consequently, TWA was more highly regarded by the neophyte than by the experienced traveller.

A sharp change took place in 1957 and 1958. Advertising expenditures which had been at the highest rate in the industry were cut sharply. Concurrently, vigorous efforts were made to improve performance. Outstanding improvements in performance have been made but it is doubtful that public acceptance equal to that of American or United has yet been achieved. In an airline study made early this year, the Chicago Tribune noted that "The ideal airline is visualized in terms of dependability, safety, speed, efficiency and service." It found that TWA was regarded as "a large and powerful airline that emphasized speed, style and glamour over personal attention and efficiency".

The consequence of past policy has been to weight TWA's clientele more in the direction of the tourist than of the business man, despite a route structure that passes through the commercial and industrial heartland of the country. Thus, in September, TWA's coach traffic was 71.7% of its total, as against 60.7% for American and 62.9% for United. While much business traffic now travels in coach accommodations, the percentages are significant. TWA's dependence on the tourist has meant both a lower revenue yield per passenger and a greater seasonality of traffic. TWA's load factors normally improve relative to American's and United's in vacation periods and drop in the fall.

Greater success in obtaining new routes than in acquiring the equipment needed to exploit them has also created problems for TWA. Conspicuous among major cities to which rights have been obtained without adequate means to serve them are Cleveland, Denver and Detroit. Weak efforts to exploit these markets have assured that TWA would not be the first choice of travellers. They have also made it certain that TWA's activities in these markets would not be highly profitable.

Against such a background, changes in advertising policy may



have unusual impact. It is believed that the decision in 1960 to cut advertising expenditures to the bone and eliminate magazine advertising entirely has had an appreciable effect on sagging load factors in 1961.

Delays and indecision with respect to the availability of flight equipment have been most damaging to the company, particularly in this last year. TWA's outstanding job of putting jets into domestic service in 1959 (at considerable sacrifice to its international business) did fair greatly to improve its industry stature. Within a year, however, its competitors had introduced a greater number of jets and TWA's 880 program had bogged down. As noted by the CAB in its order of December 29, 1960, this adversely affected TWA's competitive position. By the time the 880s were received, a major opportunity for TWA to move to the front of the competitive race had been lost. From a high of 17.4% in the third quarter of 1959, TWA's share of trunk line traffic fell to 13.2% in the first quarter of 1961. In the meantime, TWA had incurred heavy internal costs and lost substantial revenues. This contributes heavily to its present financial problems.

#### THE INTERNATIONAL SITUATION

Turning briefly to the international front, much that has been said above is applicable. As shown by Exhibit 11, Pan American's business has both grown more vigorously and been more profitable than TWA's. Until 1958, TWA had relatively higher costs but since that time TWA's unit costs have generally been lower than Pan Am's (Exhibit 12). TWA labors under the handicap that between the United States and London both Pan Am and BOAC schedule higher frequencies while Pan Am and Air France do the same between the United States and Paris.

Exhibit 13 (as well as Exh. 11) reflects the damage suffered by TWA through the operation of Super Gs and 1649s rather than DC-6s and DC-7s and by the diversion to Pan Am in 1959 of six Boeings originally destined for TWA. Prior to 1957, TWA generally showed higher load factors than Pan Am. From 1957 on, however, this was not the case and TWA experienced an unfavorable relationship in 1959 and early 1960. The introduction of jet service by TWA overcame this in 1960. In recent months, however, TWA's load factors have been below those of Pan Am reflecting, among other things, our disadvantageous terminal situation at Idlewild and the lack of magazine advertising in 1960.

Within the last few months the economic position of all transatlantic carriers has suffered greatly from sagging load factors resulting from excessive capacity. TWA has not escaped these competitive pressures. Nevertheless, in recent months TWA's international business has earned

a steady but modest profit. At the moment this business is surprisingly strong.

### MAJOR OBJECTIVES

From the foregoing, it seems apparent that to obtain future profitability TWA must achieve greater public acceptance and higher load factors. While cost reduction must be a constant challenge, there is little reason to believe that we can so improve our costs vis-a-vis other carriers that we can operate indefinitely with substantially inferior load factors. It is significant that system revenues for the twelve months ended August 31, 1961, were \$362.2 million, an increase of 50.7% over those of the year 1956. During the same period the average number of employees had increased by only 8.9%. Thus, a general reduction in headcount does not appear to present a likely solution.

Perhaps as an oversimplification our major objectives for the next few years must be to:

(1) Complete a reequipment program to give us flight equipment comparable to that of our competitors.

(2) Improve our public acceptance through better schedules, better terminals and improved customer service.

(3) Discontinue activities which our resources do not permit us to carry on effectively. Local service type operations must come under particular scrutiny.

(4) Maintain a constant effort to effect savings in operating and overhead costs without impairing our ability to maintain the quality of our essential services.

(5) Improve and strengthen our internal organization with specific reference to better interdepartmental relationships, more consistent planning and more effective marketing.

Short term, our specific problem is one of maintaining solvency while making as much progress as possible toward completion of our reequipment program. Exhibit 14 shows the relative equipment disadvantage at which TWA will be, even if we succeed in completing our Caravelle program. We have an obvious obstacle to overcome.

A reequipment program must assume, of course, that the aircraft can be profitably utilized. In times such as the present, such an assumption must be challenged, and, so far as possible, proved.



The present is not the first depression which the industry has experienced. Others occurred in 1948-49 and, to a limited degree, in 1958. On each occasion the industry eventually pulled out and went on to new records. Looking at the present one, I do not think that we should assume either that the industry will not pull out or that it will pull out with quite the vigor of the past. Quite possibly, future growth will be slower. Most of the long haul business to be taken from the railroads and buses has already been garnered. The remaining market lies largely among those who can be induced to travel more and drivers of automobiles. Factors of economy and convenience make the latter a particularly difficult market to penetrate. Probably a greater potential exists in the international field where a large volume of steamer traffic still remains to be tapped.

Practically all forecasts predict an annual increase in revenue passenger miles for the next few years of more than the approximately 6% which will be roughly the average for 1958-1961. It would appear conservative, however, to use the 6% figure. This compares with an anticipated net increase in available capacity of approximately 5% a year. Thus one cannot expect sharply improved load factors for the industry as a whole. Notwithstanding this, TWA can fairly look forward to improved load factors, comparable to those of American and United, to the extent that it operates competitive schedules with comparable equipment out of comparable terminals.

TWA's jets are with few exceptions producing profits. The major problem is that they are not producing sufficient profits to overcome the loss being occasioned by piston planes. Our operating loss on our 1049G fleet alone amounted to approximately \$11,500,000 for the twelve months ended July 31, 1961. In part, this problem must be solved by elimination of certain uneconomical route services. Solution of the problem will also require, however, more modern ships with which to provide the services which are retained. The Caravelle would break even with smaller loads than the 1049G. At the same time, it could be expected to attract substantially higher loads. On routes of the type in question, Caravelles would break even with about 10% fewer passengers than our 880s and, therefore, are to be preferred.

Attached as Exhibit 15 is a table showing for several alternate equipment programs the available domestic seat miles for the years 1962, 1963 and 1964. Also shown are anticipated load factors and the TWA share of total trunk passenger miles required to achieve such load factors. On the chance that the Caravelle program might abort, particular study is being given to alternatives B and C, the latter of which would involve the purchasing of 18 131Bs and 10 727s as opposed to the 20 131Bs and six 331Bs now on order. Alternative C would anticipate a more modest share of the

(Report to Directors of TWA-Oct. 13, 1961)

trunk market than any of the others, a share which approximates that actually realized in the years 1955-1958 and 1960. It suffers, however, in that it would leave us particularly short of jets vis-a-vis our competitors in the next few years.

The question of the extent to which additional jets would produce additional profits is undergoing the most careful scrutiny. It might be wise to postpone the six long-range Boeings if this could be done without severe penalties and if it would enable us to obtain short-range jets. A definite recommendation on this question will be made at the meeting on October 23. Suffice it at this point to note that while the profitability of any jet program must rest in the realm of opinion, one can be almost positive that without substantial additional jets TWA must undergo a vast contraction which would raise the most serious doubts as to the possibility of future profitable operation.

### ECONOMY MEASURES

Whether or not we are able to proceed with a Caravelle program, the biggest current question is that of financing our activities for the next twelve months.

At the last meeting of the Board, the financial forecast indicated a need for \$1.9 million of additional cash at the year end in order to have the \$15 million of cash required for comfortable operation. Barring some further unexpected deterioration in the general level of business, we expect that this amount will be more than made up through operating economies of about \$2,000,000 and curtailment in planned capital expenditures of approximately \$500,000. Should we be spared another crash before the year is out, an insurance reversal of about \$4 million should be available besides, but obviously this cannot be counted on. If the Caravelle program aborts, another \$1,000,000 will be available.

All of the trunklines but one have reached an agreement for downgrading the level of service in the coach section. If final agreement is reached and if this is approved by the CAB, which is highly likely, this should result in additional savings in the next half year of nearly \$2,000,000.

It is our expectation that at year end, even barring any improvement in business conditions, we will show cash substantially in excess of \$15,000,000. The serious problem will occur in the first half of 1962.

Steps are being taken to eliminate various local service type operations. We hope to get rid of Albany, Binghamton, Scranton, Williamsport, Reading, Allentown, Fort Wayne, South Bend, Terre Haute and Fresno. Additionally, vigorous attempts are being made at less active stations to handle ground services through or in cooperation with other airlines. It is hoped that from all of these activities a saving of \$2,000,000 per

(Report to Directors of TWA-Oct. 13, 1961)

year or \$500,000 per quarter can be realized. It is doubtful that elimination of these services can be accomplished in time to be of material assistance, however. Steps to eliminate certain unprofitable foreign services already have been taken.

Another source of first quarter savings might be curtailed advertising. However, our need to add volume suggests that we should proceed cautiously here. It would seem prudent to reduce our expenditures somewhat in the next few months so as to be in a position to mount a major campaign to build up to the opening of our new Idlewild terminal, the receipt of our new Boeing jets and the normal spring increase in business.

Efforts are being made to cut down crew costs through use of doppler on transatlantic flights and through achievement of a three man cockpit. If successful, these efforts should prove to be of real financial significance over the long run. From a short term standpoint, however, severance pay provisions probably will prevent realization of any significant economies.

At the present time, Mr. Hall is engaged in a crash program to eliminate expense and improve operating results over the next six months. Among other things, this involves a complete review of schedules and of the level and type of service being offered in the various markets which we serve. At this writing, this effort has not been brought to a point that it is possible to include in this discussion a definitive forecast for the first quarter of 1962. Hopefully, this will be embodied in Mr. Leslie's financial report which will be presented to the October 23 meeting. Suffice it to say here that it is expected that while the forecast will represent a definite improvement over that presented to the September meeting of the Board, it will still leave us with a financial problem during the early months of 1962.

#### REVENUE MEASURES

Considerable thought has been given to means of effecting a rapid increase in revenues. One such possibility is that of instituting a new and cheaper high density jet coach type of travel in order to stimulate new business. This general approach has been tried by TWA in the past; at times with considerable success and on one occasion with little to show as a result. Undoubtedly a high density low fare jet coach to the Pacific Coast would attract considerable business. If successful, however, our competitors undoubtedly would follow suit and the end result probably would be a general debasement of the fare level without a sufficient increase in volume to cure the basic problem.

The best estimates seem to indicate that two-thirds of those who patronize the airlines are regular travellers who will travel via the airlines for business or other reasons without particular regard to fares. Market



DX 258, page 9  
(Report to Directors of TWA-Oct. 13, 1961)

elasticity must be found among the casual travellers making up the remaining third who are responsive to fare levels. A general drop of 5% in coach fare levels would require a 16% increase in these casual travellers in order to break even. Particularly at this time of year, such an increase would appear too unlikely to be a sound solution to our problem.

Thought has also been given to special discounts or promotional fares. The general industry feeling, however, is that promotional fares have done more harm than good. The current youth fare is subject to widespread abuse and even its originators now wish to get rid of it. To date, our own promotional 13-30 day fare appears to have been a limited success but its effectiveness may be diminishing with time. It is unlikely that any promotional fare in jets which we might conceive would be sufficiently beneficial to warrant interrupting an apparent industry trend to eliminate discounts in order to avoid a general debasement of the coach fare level. We believe that in the near future low cost fare activities should be limited to our piston planes.

A coach fare increase should seem preferable to a fare cut and it is quite possible that the CAB will sanction a jet coach fare increase in the near future. Just what this will yield cannot be stated with certainty at this point. However, one might fairly assume that taking into account some upgrading of traffic to first class which will result and after allowing for some possible diminution of traffic, an increase in revenues of about 5% could be expected. This would mean a net increase in income of approximately \$500,000 per month.

### MERGER POSSIBILITIES

Before concluding, note should be taken of merger possibilities and of the possible sale of our international business.

The management has held informal discussions with Northeast, Eastern and Pan American, the largest single stockholder in National. Northeast seems to be out of the question because its financial problems are beyond our capacity to deal with. Eastern may be interested in more serious discussions but there are obvious problems which would take time to work out. Such a merger very likely would have to be accompanied by an equity offering in order to provide needed cash because Eastern also has a difficult cash problem.

Pan American is quite worried about National which is having great difficulty in financing jets required to serve its new southern route. As National's major stockholder, it is seeking a merger for National which would improve its chances of success. From a route standpoint, this might be of interest to TWA, but as yet we have seen no evidence of interest on the part of National. Also, there would be a serious cash problem and

more equity would be required. The diversity of interests in this situation will prevent any quick consummation of merger plans, even if the long-run possibility exists.

We should, I feel, be alert to any serious merger proposals which give promise of strengthening our business. At the same time, we should recognize that any merger will take time and will be fraught with complications. Our immediate problems will not be solved in this way.

### FUTURE OF INTERNATIONAL BUSINESS

So far as our foreign business is concerned, I feel that our new terminal and other factors may put us in a position to carry this on profitably for some years to come, despite increasing foreign competition. For the last few months, the international business has been carrying the domestic and at the moment is surprisingly strong. There is perhaps an even chance that our government will go to an area concept in Europe, the result of which would be to lessen the points of competition with Pan American and maximize the number of points at which we would hold a monopoly among U. S. carriers. Some program of pooling or otherwise rationalizing our service with that of Pan American appears to be a real likelihood. Should this happen, it would increase greatly the profitability of our overseas services. At the moment, it would not seem the part of wisdom to surrender any of our routes.

The question of selling our overseas routes to Pan American has been explored very cautiously. Pan American seems to have a reasonable amount of cash with which to pay at least part of the purchase price. However, there is the most serious question as to whether the CAB would approve such a sale and as to whether TWA should surrender its unique position of serving both the major cities of the United States and the major gateways of Europe. To date, this potential has not been capitalized on fully, but with the new terminal it is hoped that this can be achieved. Contacts will be maintained with Pan Am to facilitate a quick discussion of such a sale, should circumstances warrant it.

### RECOMMENDED PROGRAM

It seems clear to your management that there is no spectacular feat which will reverse overnight a trend as deep-seated as that which has been affecting TWA. We feel that the problem will be solved by improved planning and by consistent and intelligent application to a variety of details. It is our recommendation that we continue on this course even though it does not promise spectacular results from a short-term standpoint.

We are optimistic that the business of TWA will experience a very substantial lift next spring. Industry forecasts indicate that business



(Report to Directors of TWA-Oct. 13, 1961)

improved over levels prevailing a year before. TWA's new Idlewild terminal and its new fan jet fleet should give it tools with which substantially to increase its market penetration. We presently are laying our plans to capitalize on this to a maximum degree.

This leaves undisposed of the question of how we manage through the lean first half of 1962. Even the substantial improvements in our operating performance over the next six months, we may come to the end of March \$10 to \$12 million short of our desired \$15 million of cash. Conceivably, the required funds could come from (a) bank loans, (b) a deferment of payments to Boeing, or (c) an equity offering. Dealing with the latter possibility first, it seems likely that we should seek additional equity at the earliest opportunity. At the moment, so many uncertainties surround the situation that it is doubtful that an equity offering could be made under the most favorable circumstances. Also, there is doubt as to how successful such an attempt would be unless made for some positive purpose such as the acquisition of new planes. We must, however, give the most serious thought to taking such a step.

Boeing has not yet been asked for an extension of terms. Nevertheless, this should be considered a real possibility. It will depend somewhat on what our total equipment program turns out to be. So far as bank loans are concerned, we feel that a real possibility exists here, just as soon as we are in a position to forecast our future with sufficient confidence to talk in definitive terms as to what sort of financial help will be needed. The banks undoubtedly will wish to see some evidence that we are making progress in the solution of our various problems, but we hope to be able to satisfy them in this regard in the very near future.

By way of conclusion, what TWA needs more than anything else is a period of time free of crises, during which it can engage in the orderly planning and development which, there is every reason to believe, would make it the competitive equal of American and United. Consistent application to the fundamentals of the business will be far more significant in the long run than any spectacular step which we are likely to conceive suddenly to revolutionize the situation. It is to this end that we should put our efforts.

Apologies must be made for the length of this report. It is felt, however, that any less would involve a failure adequately to discuss significant facets of TWA's problem.

DX 259, page 1  
(CAB Order of Investigation-Dec. 28, 1961)

Order No. E-1706

UNITED STATES OF AMERICA  
CIVIL AERONAUTICS BOARD  
WASHINGTON, D. C.

Adopted by the Civil Aeronautics Board  
at its office in Washington, D. C.  
on the 28th day of December, 1961

-----  
In the matter of passenger fares :  
proposed by :  
: UNITED AIR LINES, INC. :  
-----

Docket 13313

ORDER OF INVESTIGATION AND SUSPENSION

On November 1, 1961, United Air Lines, Inc. (United), filed a tariff effective January 1, 1962, proposing to increase its first-class jet fares by \$1.00 and its first-class propeller fares by approximately 6 percent plus \$1.00; to increase its day coach fares (jet and piston) by 5 percent plus \$1.00; and to cancel its night coach fares. United states that these fare changes would increase its passenger revenues by 6.5 percent.

Six other carriers--American, Eastern, Braniff, Delta, Northeast, and TWA--have set forth their proposals for fare increases in letters to the Board and have stated their intention to file new tariffs in the future. The proposals embrace a fairly wide range of fare changes, at least in detail. These carriers appear unanimous in their proposals to decrease the spread between first-class and coach fares, generally (but not in every instance) by increasing coach fares approximately 5 percent, or to a range of 83 to 85 percent of first-class fares. Generally, the carriers propose little or no increases in first-class fares. American, however, would reduce long-haul (over 1,200 miles) first-class fares by 5 percent and increase the corresponding coach fares by 5 percent. Various carriers would cancel certain discounts or

- 2 -

1/  
promotional fares. In support of their fare proposals, the carriers state that for the past few years the rate of return on invested capital has been inadequate and below the return found appropriate by the Board in the General Passenger Fare Investigation. The carriers point out that in 1960 the domestic trunklines earned only 3.25 percent on their investment and that for the first nine months of 1961 there is evidence of further decline in earnings. The carriers assert that if the present low level of earnings is continued, the industry's financial structure will be threatened; and that there must be some fare increase to check and possibly reverse this unfavorable trend in earnings.

1/ American, Eastern, Northwest, and TWA propose increases in day coach fares of approximately 5 percent; Eastern and Northeast, however, would implement an increase of approximately 5 percent by raising these day coach fares to 83 1/3 percent of first-class fares; Braniff and Delta would increase such fares to 85 percent of propeller first-class fares, rounded to the next higher even dollar and then add a jet surcharge. In addition to the 5 percent fare increase, TWA would add \$1.00 to each ticket sold. With regard to first-class fares, American would reduce such fares by 5 percent for trips of 1,200 miles or more but would leave the fares for distances under 1,200 miles unchanged, although it would not oppose a moderate increase in such fares if proposed by other carriers. Braniff and Delta would increase all fares to the next higher even dollar, while Eastern and Northeast would retain present jet fares and increase first-class propeller fares 5 percent. TWA would increase each passenger fare in both jet and propeller services by \$1.00 and would increase by 5 percent all piston fares for flights of less than 1,200 miles.

American, Braniff, Eastern, and TWA would increase night coach fares approximately 5 percent; TWA would also apply an increase of \$1.00 for each passenger ticket sold and Eastern would add jet surcharges where not presently applied.

Some carriers propose publishing a rule that no food or alcoholic beverages will be served to coach passengers. The general view is that the present promotional fares should be limited or reduced in scope, although the carriers differ in their approaches. Braniff, Continental, Eastern, Northeast, TWA, and Western would discontinue family fares, while United and Northwest would retain these fares. Eastern, Braniff, and Western oppose the continuation of the present 10 percent discount for official military traffic within the United States, which is the subject of a carrier agreement which expires December 31, 1961.



- 3 -

The principal problem of the industry, according to the carriers, is the continuing diversion of passenger traffic from first class to coach; that coach service, particularly on jets, has been such a tremendous bargain that first-class passengers have been diverted to this service in large numbers, thus reducing passenger mile yields and overall profits.<sup>2/</sup>

The 11 domestic trunklines reported a composite return on investment of 2.1 percent<sup>3/</sup> for the 12-month period ended September 30, 1961. That level of earnings is inadequate by any standard. Moreover, those results mark the low point in a declining trend of earnings experienced during the last six years, notwithstanding a series of fare adjustments starting in February of 1958 which to date have increased the average first class fare by 23 percent and the average coach fare by 27 percent. The overall fare level has increased by almost 25 percent in this period.

This same six-year period has seen a substantial reduction in the year-to-year rate of passenger traffic growth from growth rates enjoyed during the first half of the 1950's. Capacity, however, during this period was increased at a faster rate than traffic with the result that industry passenger load factors have declined nearly 7 points from the favorable levels maintained during 1954 and 1955. Furthermore, aircraft now on order and scheduled for delivery during 1962 and 1963 represent very substantial potential capacity increases, even assuming that passenger traffic volume increases at a moderate pace.

The industry has also experienced sizeable increases in operating costs per seat-mile flown but those increases have been almost entirely matched by the aggregate impact of the fare increases described above. Stated differently, the trunkline industry's composite break-even load factor is currently very close to the level experienced in the favorable 1954-5 period and the disparity between current earnings and those of the earlier period appears to be attributable largely to the sharp decline in passenger load factor.

With this background in mind, the Board is convinced that while limited fare changes may improve revenues moderately, no fare program alone can restore earnings to reasonable levels. On the contrary, the industry's economic problems must be attacked on a broad front of which load factor improvement is the cornerstone. We will, therefore, institute an investigation of United proposed fare changes, except their proposed cancellation of night coach fare

<sup>2/</sup> American states that in the first nine months of 1960 first-class traffic was 51 percent of total passenger traffic, and that in the same period of 1961 first-class traffic declined to 43 percent of the total traffic, while coach traffic increased to 57 percent.

<sup>3/</sup> Before interest and after income taxes. In the same period, the carriers reported a net loss of \$19,390,000 after interest, and taxes.

- 11 -

The carriers attribute much of their current financial distress to the shift of passengers from first-class to coach services and the attendant loss of revenues without commensurate cost savings. However, we are not convinced at this time that the present fare differential of approximately 25 percent is greater than the difference between the seat-mile costs of the respective services or that the coach services are inherently less profitable than first class. Moreover, the effectuation of a general revenue increase primarily by raising coach fares might tend to inhibit the growth of traffic and magnify the difficulty in improving load factors.

As an interim revenue measure, however, the Board would permit the domestic industry to effect a general fare increase of not more than three percent. Any such tariffs would have to be filed on at least 30 days' notice and provide for expiration not more than six months after effectiveness. During that period a series of steps will be undertaken in a program to resolve the underlying economic problems. In addition the Board urges the carriers to undertake the closest scrutiny of the various remaining special fares or fare discounts and to discontinue those of doubtful economic validity. On the basis of available information, the maintenance of the family fare between points where coach service is offered appears of doubtful economic value, since it results in a first-class family fare ticket being offered at a price significantly below the corresponding coach fare. As measures to enhance the relative attractiveness of first-class service without undue burden on the coach passenger or the required coach fares, the Board would not object to an increase in the first-class free baggage allowance to 66 pounds (as suggested by at least one carrier) and the establishment of a rule permitting stopovers at reasonable charge in first-class service.

In other than passenger fare areas, several programs are already underway and others will be promptly commenced. The Board has authorized inter-carrier discussions of matters relating to cabin services, the "no-show" problem,<sup>1/</sup> and the use of joint facilities. The Board believes that cabin services tend to be overemphasized today and there exist opportunities for significant

<sup>1/</sup> The trunkline carriers have reached agreement on a program to deal with the "no-show" problem and have filed that agreement with the Board. We anticipate passing on the agreement in the very near future.



- 5 -

operating economies without eliminating the real necessities. The elimination of service of alcoholic beverages without appropriate charge appears to present one important area for economy measures at a time when first-class fares are clearly inadequate in relation to the cost of service. Similarly, the use of common facilities by two or more carriers appears to be a useful area to explore.

The load factor improvement program will include short and long range steps. For the long range, we anticipate that programs currently being embarked upon will, directly or indirectly, result in improved load factors for the trunkline industry. However, this program, which includes an increased emphasis on consolidated services at regional airports, suspension of service to uneconomic points, substitution of local service for trunkline service where mutually beneficial, and route investigations looking toward reduction in excessive competitive carrier authorizations can be implemented only after formal proceedings.

It is evident that the time required to complete the regulatory procedures necessary to effectuate any action which the Board can take in these areas forecloses these affording any real prospect of immediate relief. The urgency of the need for capacity reduction or other economic operation action aimed at improving the imbalance between traffic and capacity, particularly on the normally profitable high density markets in which load factors are currently abnormally low makes it incumbent upon the carriers to initiate a short range interim program to provide fairly immediate relief. Therefore, each carrier will be requested to submit to the Board by January 15, 1962, its suggestions as to actions it may take to improve its load factor.

Accordingly, pursuant to the Federal Aviation Act of 1958, and particularly sections 204(a) and 1002 thereof,

IT IS ORDERED THAT:

1. An investigation is instituted to determine whether the fares, charges and provisions described in Appendix A hereto are, or will be, unjust or unreasonable, unjustly discriminatory, unduly preferential, unduly prejudicial, or otherwise unlawful, and if found to be unlawful, to determine and prescribe the lawful fares, charges and provisions.
2. Pending hearing and decision by the Board, the fares, charges and provisions described in Appendix A hereto, so far as applicable to interstate air transportation, are suspended and their use deferred to and including March 31, 1962, unless otherwise ordered by the Board and that no changes be made therein during the period of suspension except by order or special permission of the Board.

DX 259, page 6  
(CAB Order of Investigation-Dec. 28, 1961)

.. 6 ..

3. The proceeding ordered herein be assigned for hearing before an examiner of the Board at a time and place hereafter to be designated.

4. Copies of this order shall be filed with the tariff and shall be served upon United Air Lines, Inc., which is hereby made a party to this proceeding.

This order will be published in the Federal Register.

By the Civil Aeronautics Board:

/s/ Harold R. Sanderson

Harold R. Sanderson  
Secretary

(SEAL)

Murphy, Vice Chairman, and Minetti, Member, filed the attached joint concurrence and dissent.

MURPHY, VICE CHAIRMAN, AND MINETTI, MEMBER, CONCURRING AND DISSENTING.

We concur in the suspension and investigation of United's proposed fare increase. We also agree that a multifaceted program as outlined in the majority opinion should be implemented by the carriers to improve earnings. We cannot assent, however, to a general 3% fare increase at this time. In our opinion, low trunkline load factors, due to the greatly increased capacity of the new jet aircraft, will not be improved by increasing fares. We believe that further fare increases (on top of the almost 25% increase over the past four years) may discourage the growth of traffic and compound, rather than alleviate, the carriers' financial problems.

There are a number of areas which promise fruitful reduction of unnecessary expenses and costs to which the attention of the industry has been invited and to which it is now addressing itself. This is a task which is vitally affected by the public interest and offers greater promise of producing a worthwhile solution to the financial difficulties of the industry than any further fare increase.

Since the Board agrees that declining passenger load factors are the essence of the industry's present economic problem, it is important to note that an improvement of a single percentage point in the overall load factor (presently only 56.2% for the industry) would produce an additional 30 million dollars in gross revenues. It is interesting,

- 2 -

also, to observe that the almost 25% in fare increases over the past four years has balanced out the rise in cost levels in this period so that the present average revenue yield per revenue passenger-mile bears the same ratio to average seat-mile costs as obtained during the financially favorable climate of 1954-5. Moreover, with many of the non-recurring jet integration costs behind us, costs give every indication of leveling out, and no dramatic changes are reasonably anticipated. These facts would seem to dictate that now is the time to hold the line. Moreover, it is reasonable to assume that an industry trend toward pure transportation service on a more economic basis (a trend which we all encourage) should eventually lead to a reduction in fares and open new and even greater markets for air transportation as we move forward in the jet age.

In short, additional trunkline passengers must be attracted to fill the present empty seats and this is unlikely to occur if fares are raised. The inevitable result of the fare increase authorized by the majority is a contribution by the traveling public of an additional 54 million dollars (on an annual basis) without any real expectation that this will solve the carriers' complex problems. We believe that such a fare increase will hamper the growth of air traffic and load factor improvement and may delay or deter a consistent and aggressive attack upon the root causes responsible for the temporary economic malady which now affects some elements of the industry.

In addition, we wish to register a dissent from any Board encouragement which would move the industry to abolish all of the special fares



- 3 -

or fare discounts without discrimination. We believe that certain traditional promotional fares, such as the family plan and half-fare for children should be retained as constructive merchandising programs which have developed new markets and will continue to encourage growth in air travel. Moreover, the 10% discount now afforded military personnel on first-class flights helps to fill first-class seats.

/s/ ROBERT T. MURPHY

/s/ G. JOSEPH MINETTI

TRANS WORLD AIRLINES, INC.  
380 Madison Avenue  
New York 17, N. Y.

FEB 1 9 51 AM '62

January 29, 1962 BOARD

The Honorable Alan G. Boyd  
Chairman  
Civil Aeronautics Board  
Washington 25, D. C.

13313

Dear Mr. Boyd:

TWA submits this letter in response to requests contained in Order No. E-17885 and your letter of January 4, 1962. Comments were invited on programs designed to improve load factors, particularly in high-density markets.

In general, TWA agrees that the imbalance between traffic and capacity and the resulting low load factors have been a principal cause of unprofitable trunkline operations. We believe that a most important underlying cause of the imbalance is excessive competition in the high-density markets. TWA's plans include steps to improve load factors and to avoid an aggravation of the excessive capacity in these markets. Nevertheless, everyone must recognize that ultimately its actions are necessarily affected by the actions and reactions of competitors in the same markets.

TWA's scheduling policy will be to increase load factors by improving the quality of the product without significant additions to capacity. In effect, TWA plans broadly to hold 1962 levels of service and frequency of schedules to 1961 standards. TWA expects to improve its load factors in June 1962 by approximately 2% over June 1961 pursuing the policy outlined above.

TWA derives 72.3% of its domestic passenger miles from service in the 100 top-ranking domestic markets. Consequently, our plans for the top 100 markets largely coincide with our plans for our entire domestic system.

In the peak month of August 1961, TWA flew an average of 247,000 plane miles per day in domestic passenger service - the same daily mileage presently planned for June 1962. Monthly seat miles available will increase 3.5%, from 709 million in August of 1961 to 734 million in June of 1962. This modest rise is attributable as much to an increase in coach seats at the expense

(Letter - Tillinghast to CAB, Jan. 29, 1962)

The Honorable Alan S. Boyd

Page 2

January 29, 1962

of first class as it is to the substitution of jet for piston mileage. Although August 1962 plans are not yet as firmly established as June's, they are expected to show only a modest increase in capacity over June.

The most significant statistic, however, relates to the number of frequencies operated in markets of major importance to TWA. These markets are obviously of primary significance to our major competitors as well. It is in these markets that our capacity has tended especially to depress load factors. TWA presently plans but a single frequency increase in its top 10 markets during 1962. These 10 markets account for over 40% of our domestic passenger miles.

According to present plans, TWA's peak schedule in its top 15 markets will total 43 in June 1962 compared with 45 1/2 in August 1961. In its top 25 segments, TWA will offer 60 frequencies in June 1962 compared with 62 1/2 in August 1961. August frequencies are also expected to be below August 1961. These markets account for 60% of the company's revenue passenger miles.

Perhaps it would be fair to evaluate relative carrier contribution to excess capacity on the basis of historic market participation. Using this bench mark, it can be seen that TWA's projected levels of service will tend only to regain a share-of-the-market position which has been trending slightly downward in the last two years.

Obviously, the success of the foregoing program will depend upon whether our competitors will exercise similar restraint or will try to turn our restraint to their advantage. This question arises in each individual market. One cannot fairly expect one competitor to restrict frequencies or capacity unless other competitors do likewise.

A current example highlights this problem. In December, TWA and one of its competitors each reduced a frequency in the New York - Los Angeles market to comply with seasonal requirements. The other competitor, however, promptly added a flight which raised its frequency to 5 non-stop flights each day. It then sought to achieve an important competitive advantage by an intensive and widespread advertising and sales promotion campaign stressing the fact that its frequency was equal to the combined services of its competitors. Under such circumstances, those who restricted their capacity can only look forward to the day when they can again match frequencies with the third competitor and thus erase the competitive disadvantage under which they now labor.

DX 260, page 3  
(Letter - Tillinghast to CAB, Jan. 29, 1962)

The Honorable Alan S. Boyd  
Page 3

January 29, 1962

Numerous other examples, with most of which the Board must be familiar, could be cited. In the light of these experiences, TWA's scheduling policy as set forth above is and will be subject to the need for response to the practices of its competitors. As the Board knows, frequency of service is a most potent competitive weapon. A carrier's participation in a market is directly related not only to its general prominence or to the tendency of the public to identify it with transportation in that particular market, but more specifically to the frequency of its operations. Capacity and frequency which are excessive at one point in time may later become naked dominance in the market if the competitors are subordinated by a substantial margin and for a sufficient time. TWA cannot remain insensitive to such threats.

Two other factors which contribute to excessive capacity should be mentioned. The first concerns the supplemental lines. While it may be true that their capacity constitutes a small percentage of industry total, such capacity is significantly concentrated in markets which vitally affect TWA.

The second difficulty stems from high-frequency schedules operated by local service lines between major terminals. These are particularly vexatious because the government is partially underwriting the capacity that contributes to our problem. In one market, for example, a local service carrier is operating nine daily non-stop schedules with on board loads averaging below 50%.

As already stated, TWA plans to hold schedule frequencies down so that anticipated traffic increases will result in higher load factors, and we have indicated some of the major assumptions and contingencies involved in these plans. We have not here attempted to submit a detailed market-by-market analysis. To do so would require a most voluminous submission involving so many assumptions and variables that it would be of little value to the Board. In addition, it would require a complete statement of our marketing analyses and sales objectives on a segment by segment basis. It is questionable whether the Board desires at this time so much proprietary information.

"Plans to improve load factors" vary with flights and with segments. Such plans could include changing the type of equipment formerly employed, or changing configuration, time of departure, cabin service or routing of the schedule itself. In fact, a carrier might plan schedules which were intended to reduce load factors in a given market but produce more profit for the company. Cross-connections, interline or on-line feed, avoidance of multiple operations during congested periods and a host of other considerations might figure in any plan to improve load factors in a given market.



Honorable Alan S. Boyd

January 29, 1962

TWA suggests that the Board might wish to make a more detailed examination of a relatively few selected markets which account for important percentages of total travel or which appear particularly suspect as examples of excess capacity. Such an investigation might bring to the Board valuable information enabling it better to come to a conclusion as to whether it wished to exercise existing power or seek additional power to deal with the over-capacity problem. TWA would be most willing to cooperate and assist in such further studies as may be of interest to the Board. It would seem obviously desirable to select markets with respect to which the Board is in the best position to adopt effective remedies or to cause affected carriers to do so.

Specific consideration should be given to the question of whether it would be in the public interest for the Board to encourage capacity and frequency agreements among the carriers, subject to Board approval. TWA specifically suggests that an initial step in this direction could be taken if the carriers were to address themselves to the levels and frequency of services to be operated in selected markets on low traffic days (holiday weekends are one example). Substantial mileage reductions which would mean dollar savings could be effected without prejudice to public convenience. TWA is interested, and prepared to participate in such discussions.

In addition to encouraging the airlines to solve this problem in part by agreement, we believe the Board should also seriously consider preventing the operating of excess capacity, at least when this amounts to an unfair method of competition, by examining the question it may have under the Act. Section 411, for example, gives the Board power to order any airline to cease and desist from unfair or deceptive practices. This method of competition.

While the Board has indicated these comments should be addressed primarily to domestic problems, TWA believes that international operations by U. S. flag carriers are subject to the same difficulties. The Board and other segments of government are aware of allegedly excess capacity situations on international markets.

In this connection, TWA's record for a three-year period is as follows:

Year	Peak Frequency		
	Jet	Piston	Total
1960	35	8	42
1961	40	1	41
1962	43	0	43

DX 260, page 1  
(Letter - Tillinghast to CAB, Jan. 29, 1962)

AX-1708

TRANS WORLD AIRLINES, INC.  
380 Madison Avenue  
New York 17, N. Y.

RECEIVED  
FEB 1 9 51 AM '62  
January 29, 1962 BOARD

The Honorable Alan G. Boyd  
Chairman  
Civil Aeronautics Board  
Washington 25, D. C.

13313

Dear Mr. Boyd:

TWA submits this letter in response to requests contained in Order No. E-17885 and your letter of January 4, 1962. Comments were invited on programs designed to improve load factors, particularly in high-density markets.

In general, TWA agrees that the imbalance between traffic and capacity and the resulting low load factors have been a principal cause of unprofitable trunkline operations. We believe that a most important underlying cause of the imbalance is excessive competition in the high-density markets. TWA's plans include steps to improve load factors and to avoid an aggravation of the excessive capacity in these markets. Nevertheless, everyone must recognize that ultimately its actions are necessarily affected by the actions and reactions of competitors in the same markets.

TWA's scheduling policy will be to increase load factors by improving the quality of the product without significant additions to capacity. In effect, TWA plans broadly to hold 1962 levels of service and frequency of schedules to 1961 standards. TWA expects to improve its load factors in June 1962 by approximately 2% over June 1961 pursuing the policy outlined above.

TWA derives 72.3% of its domestic passenger miles from service in the 100 top-ranking domestic markets. Consequently, our plans for the top 100 markets largely coincide with our plans for our entire domestic system.

In the peak month of August 1961, TWA flew an average of 247,000 plane miles per day in domestic passenger service - the same daily mileage presently planned for June 1962. Monthly seat miles available will increase 3.5%, from 709 million in August of 1961 to 734 million in June of 1962. This modest rise is attributable so much to an increase in coach seats at the expense

The Honorable Alan S. Boyd  
Page 2

January 29, 1962

of first class as it is to the substitution of jet for piston mileage. Although August 1962 plans are not yet as firmly established as June's, they are expected to show only a modest increase in capacity over June.

The more significant statistic, however, relates to the number of frequencies operated in markets of major importance to TWA. These markets are obviously of primary significance to our major competitors as well. It is in these markets that excess capacity has tended especially to depress load factors. TWA presently plans but a single frequency increase in its top 10 markets during 1962. These 10 markets account for over 40% of our domestic passenger miles.

According to present plans, TWA's peak schedule in its top 15 markets will total 43 in June 1962 compared with 46 1/2 in August 1961. In its top 25 segments, TWA will offer 60 frequencies in June 1962 compared with 62 1/2 in August 1961. August frequencies are also expected to be below August 1961. These markets account for 60% of the company's revenue passenger miles.

Perhaps it would be fair to evaluate relative carrier contribution to excess capacity on the basis of historic market participation. Using this bench mark, it can be seen that TWA's projected levels of service will tend only to regain a share-of-the-market position which has been trending slightly downward in the last two years.

Obviously, the success of the foregoing program will depend upon whether our competitors will accept a similar restraint or will try to turn our restraint to their advantage. This question arises in each individual market. One cannot fairly expect one competitor to restrict frequencies or capacity unless other competitors do likewise.

A current example highlights this problem. In December, TWA and one of its competitors each reduced a frequency in the New York - Los Angeles market to conform to seasonal requirements. The other competitor, however, promptly added a flight which raised its frequency to 5 non-stop flights each day. It then sought to achieve an important competitive advantage by an intensive and widespread advertising and sales promotion campaign stressing the fact that its frequency was equal to the combined services of its competitors. Under such circumstances, those who restricted their capacity can only look forward to the day when they can again match frequencies with the third competitor and thus erase the competitive disadvantage under which they now labor.



(Letter - Tillinghast to CAB, Jan. 29, 1962)

The Honorable Alan S. Boyd  
Page 3

January 29, 1962

Numerous other examples, with most of which the Board must be familiar, could be cited. In the light of these experiences, TWA's scheduling policy as set forth above is and will be subject to the need for response to the practices of its competitors. As the Board knows, frequency of service is a most potent competitive weapon. A carrier's participation in a market is directly related not only to its general prominence or to the tendency of the public to identify it with transportation in that particular market, but more specifically to the frequency of its operations. Capacity and frequency which are excessive at one point in time may later become naked dominance in the market if the competitors are subordinated by a substantial margin and for a sufficient time. TWA cannot remain insensitive to such threats.

Two other factors which contribute to excessive capacity should be mentioned. The first concerns the supplemental lines. While it may be true that their capacity constitutes a small percentage of industry total, such capacity is significantly concentrated in markets which vitally affect TWA.

The second difficulty stems from high-frequency schedules operated by local service lines between major terminals. These are particularly vexatious because the government is partially underwriting the capacity that contributes to our problem. In one market, for example, a local service carrier is operating nine daily non-stop schedules with on board loads averaging below 50%.

As already stated, TWA plans to hold schedule frequencies down so that anticipated traffic increases will result in higher load factors, and we have indicated some of the major assumptions and contingencies involved in these plans. We have not here attempted to submit a detailed market-by-market analysis. To do so would require a most voluminous submission involving so many assumptions and variables that it would be of little value to the Board. In addition, it would require a complete statement of our marketing analyses and sales objectives on a segment by segment basis. It is questionable whether the Board desires at this time so much proprietary information.

"Plans to improve load factors" vary with flights and with segments. Such plans could include changing the type of equipment formerly employed, or changing configuration, time of departure, cabin service or routing of the schedule itself. In fact, a carrier might plan schedules which were intended to reduce load factors in a given market but produce more profit for the company. Cross-connections, interline or on-line feed, avoidance of multiple operations during congested periods and a host of other considerations might figure in any plan to improve load factors in a given market.



DX 260, page 4  
(Letter - Tillinghast to CAB, Jan. 29, 1962)

Honorable Alan S. Boyd

January 29, 1962

TWA suggests that the Board might wish to make a more detailed examination of a relatively few selected markets which account for important percentages of total travel or which appear particularly suspect as examples of excess capacity. Such an investigation might bring to the Board valuable information enabling it better to come to a conclusion as to whether it wished to exercise existing powers or seek additional power to deal with the over-capacity problem. TWA would be most willing to cooperate and assist in such further studies as may be of interest to the Board. It would seem obviously desirable to select markets with respect to which the Board is in the best position to adopt effective remedies or to cause affected carriers to do so.

Specific consideration should be given to the question of whether it would be in the public interest for the Board to encourage capacity and frequency agreements among the carriers, subject to Board approval. TWA specifically suggests that an initial step in this direction could be taken if the carriers were to address themselves to the levels and frequency of services to be operated in selected markets on low traffic days (holiday weekends are one example). Substantial mileage reductions which would mean dollar savings could be effected without prejudice to public convenience. TWA is interested, and prepared to participate in such discussions.

In addition to encouraging the airlines to solve this problem in part by agreement, we believe the Board should also seriously consider preventing the operating of excess capacity, at least when this amounts to an unfair method of competition, by exercising the powers it may have under the Act. Section 411, for example, gives the Board power to order any airline to cease and desist from unfair or deceptive practices or from unfair methods of competition.

While the Board has indicated these comments should be addressed primarily to domestic problems, TWA believes that international operations by U. S. flag carriers are subject to the same difficulties. The Board and other segments of government are aware of allegedly excess capacity situations on international markets.

In this connection, TWA's record for a three-year period is as follows:

Year	Peak Frequency		
	Jet	Piston	Total
1960	35	8	42
1961	40	1	41
1962	43	0	43

The Honorable Allen S. Boyd  
Page 5

January 29, 1962

The record of TWA's principal transatlantic competitor, for the same period, is as follows:

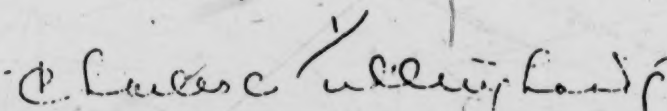
Year	Per Cent Frequency		
	<u>Jet</u>	<u>Piston</u>	<u>Total</u>
1960	50	8	58
1961	75	7	80
1962	92	8	100

Particularly in view of the notorious over-capacity on the North Atlantic one might well question whether such an increase in capacity was not prompted by a desire to achieve a special competitive advantage. Obviously, one faced with such an increase in capacity cannot help but give serious thought as to how it can add capacity sufficient to offset this advantage.

While the criteria for determining excess capacity in international operations are different so far as bilateral air transport agreements are concerned, excess capacity per se is a subject of legitimate interest to the Board. TWA suggests only that the area of the Board's concern should not be bound by the continental limits of the United States.

In summary, efforts to fit capacity to the demand are basic to our plans and the effectiveness of these efforts will depend in large part on what our competitors do. Consequently, we share the Board's concern and express our willingness to participate in such further studies as the Board may undertake.

Sincerely,



Charles C. Tillinghast, Jr.

cc: Members of the CAB  
All trunkline Presidents

4/8/67

W.B.

Using this pattern of changing service for the fleet of thirty CV 880 aircraft, we calculate the reduction of piston aircraft service as follows:

Year	Additional Jet Plane-Miles With 30 CV 880s (a)	Piston Plane-Miles Reduction, at 51% (b)	Seats Per Average Piston Aircraft (c)	Average Piston Aircraft Load Factor (c)	Passenger-Miles for Reduced Piston Service (b)
	(Millions)	(Millions)			(Millions)
1960	5.8	3.0	68.0	60.2%	123
1961	11.2	5.7	68.3	<del>60.4</del> 49.3	<del>235</del> 231
1962	11.6	5.9	67.9	61.7	247
1963	9.4	4.8	68.2	59.6	195

(a) From page 67.

(b) By calculation.

(c) Calculated from data in TWA's Schedule 3-TOM.

REVENUE INCREASE

The foregoing changes in passenger-miles, at TWA's average yields, would have produced a passenger revenue increase as follows:

Year	Passenger-Miles			Average Yield (d)	Net Increase of Passenger Revenue (c)
	Additional CV 880 (a)	Deleted Piston (b)	Net Increase (c)		
	(Millions)				(Millions)
1960	351	123	228	5.645	\$12.9
1961	648	<del>235</del> 231	<del>413</del> 417	5.832	<del>24.3</del> 24.5
1962	599	247	352	6.104	21.5
1963	506	195	311	5.645	13.2

(a) From page 67.

(b) From table above.

(c) By calculation.

(d) From page 30.

Using the 5 percent additional revenue for various kinds of cargo including mail, express, freight and excess (weight) baggage as mentioned on pages 63 and 31, we calculated additional revenue for these types of cargo and total additional revenue with a fleet of thirty CV 880 aircraft, as fol-

Year	Additional Passenger Revenue(a)	Additional Revenue from Various Types of Cargo, at 5% (b)	Total Additional Revenue(c)
(Millions)			
1960	\$12.9	\$0.6	\$13.5
1961	24.3	1.2	25.5
1962	21.5	1.1	22.6
1963	18.2	0.9	19.1

- (a) From previous page.  
(b) By calculation.  
(c) By addition.

### OPERATING EXPENSES

We estimated changes in Operating Expenses that would have occurred if TWA had received a fleet of thirty CV 880 aircraft rather than twenty aircraft generally in accordance with the method and considerations used for expense estimates of previous Chapters of this report. The details of our estimates are set forth in Exhibit J. The table below summarizes these estimates.

Estimated Changes in Operating Expenses That Would Have Occurred if TWA had Received Thirty CV 880 Aircraft				
Operating Expense	1960	1961	1962	1963
(Millions)				
Flying Operations	\$ +2.2	\$ +4.2	\$ +4.2	\$ +2.1
Maintenance	+1.8	+3.6	+3.9	-
Aircraft Servicing	+0.6	+1.2	+1.3	+1.1
Passenger Service	+1.0	+1.9	+1.6	+1.1
Traffic Servicing	+0.8	+1.5	+1.5	+1.3
Servicing Administration	+0.1	+0.1	+0.1	+0.1
Promotion and Sales	+1.3	+2.6	+2.4	+2.2
General and Administrative	+0.3	+0.8	+0.6	+0.5
Depreciation and Amortization(A)	+2.7	+5.7	+5.4	+4.4
	\$+10.8	\$+21.6	\$+21.0	\$+14.1

(A) Furnished by Price Waterhouse & Co.



GAIN OR LOSS FROM OPERATIONS

We calculate the change in Gain or Loss from Operations that would have been the result of TWA receiving thirty rather than twenty CV 680 aircraft as follows:

Year	Additional Revenue(a)	Additional Expense(b)	Improvement In Gain or Loss from Operations(c)
	(Millions)		
1960	\$13.5	\$10.8	\$2.7
1961	<del>25.7</del> 25.7	21.6	<del>3.9</del> 4.1
1962	22.6	21.0	1.6
1963	19.1	14.1	5.0

(a) From table at top of page 71.

(b) From table at bottom of page 71.

(c) By subtraction.

DX 262, page 4  
(Revised Pages 70-73 of TWA Ex. 4(c)(1))

# CHAPTER VI

## FINANCIAL GAIN OR LOSS FROM OPERATIONS: SUMMARY

The foregoing estimates of change in TWA's Financial Gain or Loss from Operations (also called Operating Profit) are summarized in the following table for the changes in jet aircraft ownership, numbers and receipt dates.

Change in Jet Aircraft	Change in Gain or Loss from Operations				
	1959	1960	1961	1962	1963
	(Millions)				
I- Ownership rather than lease of 15 B-131 and 12 B-331 jets	\$ +3.4	\$ +7.9	-	-	-
II- Six additional B-331 jets	+0.3	+16.0	\$ +3.7	\$ +2.0	\$ -0.2
III- Earlier receipt of 15 B-131 and 12 B-331 jets	+6.9	+3.2	-	-	-
IV- Receipt of 20 CV 880 jets on dates in purchase contract	-	+4.0	+2.4	-	-
V- Fleet of 30 rather than 20 CV 880 jets	-	+2.7	<del>4.1</del> 4.1	+1.6	+5.0
Annual Totals	\$+10.6	\$+33.3	\$+10.0	\$+3.6	\$+4.3

\$+10.2

In addition to the estimated changes listed above, Price Waterhouse & Co. calculated for the assumptions you gave us for Chapters I through V changes in Depreciation and Amortization Expense for other years affecting the Gain or Loss from Operations as follows:

Calculated by Price Waterhouse & Co.					
I- Ownership rather than lease of 15 B-131 and 12 B-331 jets	-	-	\$ +1.0	\$ +0.1	\$ +0.3
II- Six additional B-331 jets	-	-	-	-	-
III- Earlier receipt of 15 B-131 and 12 B-331 jets	-	-	-0.1	-	-0.3
IV- Receipt of 20 CV 880 jets on dates in purchase contract	-	-	-	+0.8	-0.6
V- Fleet of 30 rather than 20 CV 880 jets	-	-	-	-	-
Annual Totals	-	-	\$ +0.9	\$ +0.9	\$ -0.6
Grand Total	\$+10.6	\$+33.3	\$+10.9	\$+4.5	\$+4.2

Total for All Years: \$+64.0

Respectfully submitted,

*Corradale & Colpitts*  
Consulting Engineers

REPORT OF  
LOEB, RHOADES & CO.

re:

DREXEL HARRIMAN RIPLEY, INC.  
FINANCING PLAN DATED MAY 2, 1966

PARTS I and II

AX-1713

DX270

(Report of Loeb, Rhoades & Co.)

PART  
I

PART I

QUALIFICATIONS



LOEB, RHOADES & CO.

FORTY TWO WALL STREET  
NEW YORK, N. Y. 10005  
TELEPHONE 530-4000

DX270, Part I, page  
(Report of Loeb, Rhoades & Co.)

June 8, 1967

Donovan, Leisure, Newton & Irvine  
2 Wall Street  
New York, N. Y. 10005

Gentlemen:

You have requested information as to the qualifications of Loeb, Rhoades & Co., as Investment Bankers in connection with our proposed testimony in the subject case.

Loeb, Rhoades is one of the major underwriting firms in the investment banking community, having its principal offices at 42 Wall Street, New York, N.Y., with 29 Partners and approximately 1265 employees. We carry on a full service business, including not only the normal functions of broker-dealers and investment advisors but also as specialists in corporate acquisitions and mergers, private placements and the origination of, or participation in underwritings for our clients.

There are appended hereto tabulations showing (i) Offerings Managed Or Co-managed by Loeb, Rhoades & Co., (or our wholly owned subsidiary firm Loeb, Rhoades Inc.) and (ii) Dollar Totals - Underwriting Participations - by Loeb, Rhoades & Co., and Loeb, Rhoades Inc., from 1955 through 1966. We have not maintained complete records of our private placement activities for such period but there is appended hereto a partial list of such activities.

On December 12, 1956, we were the Managing Underwriter and offered to the public 784,402 shares of Northeast Airlines common stock.

TWA and Pan American Airways concluded a merger agreement in 1962. We were retained by the Voting Trustees under the Voting Trust Agreement created in connection with the December 30, 1960 financing to advise and consult with them, with respect to such merger agreement. On December 31, 1962 a petition to approve the merger was filed with the Civil Aeronautics Board. On March 4, 1963 the Board handed down an order deferring proceedings in such case indefinitely. In October, 1963 the Board of Directors of both TWA and Pan American decided to terminate the merger agreement. As a consequence of this action, while we engaged in several months' work in connection with

Donovan, Leisure, Newton & Irvine

the merger agreement, no final action could be taken in respect thereto.

With respect to the qualifications of the individual Partners of Loeb, Rhoades who are the signatories and will appear as witnesses in this matter if requested, they are as follows:

Armand G. Erpf was born on December 8, 1897 in New York City and received his B.S. Degree at Columbia University in 1917. After overseas experience in the mining and commodity fields, and association with Cornell, Linder & Co., Management Engineers, he became Director of the Statistical and Research Departments of Carl M. Loeb, Rhoades & Co. in 1933 and a General Partner in 1936.

He is Chairman of the Executive Committee and a Director of Crowell Collier and Macmillan; Member of the Executive Committee and a Director of Seaboard Air Line Railroad Company; Member of the Finance Committee and a Director of General Instrument Corporation; a Director of Jefferson Insurance Company of New York; Jersey External Trust; Raynier Incorporated; Stein Roe & Farnham International Fund; Adela Investment Co., S.A.

He has taken an active part in numerous corporate reorganizations, mergers, and underwritings on behalf of his firm. He was instrumental in establishing the Pennsylvania-Central Air Lines which became Capital Air Lines and was subsequently merged into United Air Lines. He arranged for the financing of Northeast Air Lines in negotiation with Atlas Corporation. He has guided the building up of Crowell Collier and Macmillan through extensive acquisitions and underwritings to an eminent position in educational publications.

He is Chairman of the Council of the Graduate School of Business of Columbia University, Member of the Visiting Committee of the Graduate School of Business at the University of California (Los Angeles), Chairman of the Program for Studies of the Modern Corporation of Columbia University.

He served in the Office of the Commanding General, Headquarters Army Service Forces, Washington, D.C. during 1942-45, and was on duty with the Headquarters, U. S. Army Forces, Western Pacific and with the Commanding General, U. S. Army Forces, China Theater, in 1945-46. He was appointed to the General Staff Corps in 1944, and awarded the Legion of Merit in 1946.

Donovan, Leisure, Newton & Irvine

Kenrick S. Gillespie was born on April 13, 1907 in Morristown, New Jersey; graduated from the Taft School cum laude in 1925 and from Yale University in 1929; BA Degree, Phi Beta Kappa. Spent one year (1929-1930) at Lehman Brothers and one year at the Harvard Business School (1930-1931). Until coming to Loeb, Rhoades & Co. in 1950 he was engaged in investment research successively for an investment trust, Charles D. Barney & Co., and Barrett Associates, Inc., an investment counseling firm. Became a Partner of Loeb, Rhoades & Co., on January 1, 1955. In post World War II period his work in security analysis was fairly heavily concentrated in the air transport and aerospace industries and he assumed senior responsibility for this area at Loeb, Rhoades & Co. He is a member of the New York Society of Security Analysts, Airline Analysts Society of New York and the Aerospace Analysts of New York. He lead a panel of three speakers at the October, 1964 meeting of the National Federation of Financial Analysts covering the Air Transport Industry. He was largely responsible for a financing program for Seaboard World Airlines, Inc., which covered close to a year's work in 1959-1960 and culminated in a \$6 million financing program in the fall of 1960, including Convertible Debentures and a Rights Offering. In addition to the above activities he has been Manager of the Investment Advisory Department, head of the Loeb, Rhoades Research Department and is now the Partner in charge of the Correspondent Service Department.

Gene M. Woodfin was born on February 7, 1919 in Paris, Texas; attended public schools; graduated from The University of Texas in 1940 - LLB, with highest honors; became associated with Vinson, Elkins, Weems & Francis in June, 1940; became a Partner of the firm in January, 1950 and remained with such firm (except for duty with the U.S. Navy 1942-46) until May, 1959, at which time he became a General Partner of Carl M. Loeb, Rhoades & Co. As a practicing lawyer he engaged primarily in corporate practice, particularly specializing in Oil and Gas and Gas Pipeline work. He had the primary responsibility for the development and implementation of the financing of Trunklines Gas Co., Gulf Interstate Gas Co. and Transwestern Pipe Line Co., each such financing requiring the placement of long term debt with the lending institutions and negotiations with and the completion of underwriting agreements with the several underwriters. With Loeb, Rhoades he is one of the Partners in charge of its Corporate Finance Division, and in such capacity he passes upon and assists in all underwritings and the placement of institutional loans. Mr. Woodfin is authorized to practice in the States of Texas and Illinois and is a member of the American Bar Association as well as the Bars of the States mentioned.

Very truly yours,

  
Gene M. Woodfin

OFFERINGS MANAGED OR CO-MANAGED BY CARL M. LOEB, RHOADES & CO.  
(OR CARL M. LOEB, RHOADES & CO. INCORPORATED) 1955 - 1966

2/23/55	\$ 925,050	N. Y. Capital Fund of Canada 35,000 shs. common at 26.43 unregistered secondary
3/31/55	\$1,890,000	Basic Refractories 12,000 shs. common at 15 3/4 - unregistered secondary
4/7/55	\$4,651,200	Pan American Sulphur Conv. Sub. Income Debs. 5/67. <u>Kuhn Loeb-CMLR</u>
4/13/55	\$5,074,375	General American Oil of Texas 88,250 shs. common at 57 1/2 unregistered secondary - <u>CMLR- Sanders &amp; Newsom</u>
6/22/55	\$2,300,000	Belock Instrument Corp. 200,000 shs. common at 11 1/2
7/5/55	\$ 661,648	Three States Natural Gas 103,788 shs. common at 6 3/8, unregistered secondary.
7/18/55	\$ 483,093	Sterling Drug, Inc. 74,322 shs. common at 51 1/2 - unregistered secondary
7/21/55	\$2,619,367	National Biscuit Co. 63,887 shs. common at 41. Unregistered secondary - <u>CMLR-Hallgarten</u>
8/24/55	\$3,363,750	California Electric Power Co. 230,000 shs. common at 14 5/8 (competitive bid) <u>CMLR</u> - Bear Stearns
9/27/55	\$ 859,200	Walter Kidde & Co. 53,700 shs. commonrights offer at 16
11/2/55	\$1,300,000	Plymouth Oil Co. 40,000 shs. common at 32 1/2 - unregistered secondary <u>CMLR</u> - Chaplin & Co.
11/23/55	\$1,405,950	Harrisburg Steel Co. 36,400 shs. common at 38 5/8 - special offering
12/7/55	\$ 862,500	Kawecki Chemical Co. 75,000 shs. common at 11 1/2
12/12/55	\$ 446,513	Interstate Bakeries Corp. 14,175 shs. common at 31 1/2 - special offering
12/13/55	\$3,500,000 \$1,000,000	National Propane Corp. 140,000 shs. 5% Conv. 2nd pfd. at 25 National Propane Corp. 100,000 shs. common at 10. <u>CMLR</u> - Union Securities



1/12/56	\$2,220,000	E. J. Korvette Co. 222,000 shs. common at 10
2/2/56	\$1,256,250	Canada Dry Ginger Ale 75,000 shs. common at 16 3/4 - unregistered secondary
3/1/56	\$4,480,796	U. S. Pipe & Foundry 169,888 shs. common 26 3/8 - unregistered secondary, <u>CMLR</u> -Farwell, Chapman
4/19/56	\$13,359,616	New England Electric System 834,976 shs. common, rights offer at 16 (competitive bid) <u>CMLR</u> - Ladenburg-Wertheim
5/22/56	\$3,316,500	American Shopping Centers 330,000 units at 10.05
6/7/56	\$8,138,200	Delaware Power & Light Co. 232,520 shs. common, rights offer at 35 (competitive bid)
6/21/56	\$16,901,664	U. S. Life Ins. Co. in the City of New York 650,064 shs. common at 26 (550,064 shs. registered secondary; 100,000 shs. new) <u>Wm. Blair</u> - First Boston-CMLR
8/13/56	\$ 217,500	Koehring Co. 3,000 shs. common at 72 1/2 - unregistered secondary. <u>CMLR</u> - Loewi
9/10/56	\$1,494,240	Harsco Corp. 34,953 shs. common at 42 3/4 - unregistered secondary
12/12/56	\$7,451,819	Northeast Airlines, Inc. 784,402 shs. - common at 9 1/2
1/30/57	\$ 448,356	Armstrong Cork 16,683 shs. common at 26 7/8 - unregistered secondary. <u>CMLR</u> - Chaplin & Co.
2/27/57	\$12,936,000	West Penn Electric Co. 528,000 shs. common-rights offer at 24 1/2
5/14/57	\$1,617,084	DuMont Broadcasting Corp. 231,012 shs. common-rights offer at 7 - <u>Kuhn Loeb</u> - CMLR
5/14/57	\$ 892,500	Marchant Calculators, Inc. 30,000 shs. common at 29 3/4 - unregistered secondary. <u>CMLR</u> - Sutro & Co.
6/7/57	\$1,257,300	Gulf Interstate Gas Co. 111,760 shs. common at 11 1/4 - unregistered secondary
6/10/57	\$14,175,000	Kaiser Industries Corp. 900,000 shs. common at 15 3/4 - registered secondary. <u>First Boston</u> - Dean Witter - CMLR
8/26/57	\$2,425,000	Jim Walter Corp. 50,000 Units at 48 1/2 <u>CMLR</u> - Prescott, Shepard

1/17/58	\$ 811,750	Minnesota & Ontario Paper 34,000 shs. common at 23 7/8 - unregistered secondary - <u>Goldman Sachs</u> - CMLR
4/16/58	\$14,528,235	New England Electric System 968,549 shs. common-rights offer at 15 (competitive bid) <u>CMLR-Ladenburg-Wertheim</u>
4/16/58	\$1,200,000	Minnesota & Ontario Paper 50,000 shs. common at 24. Unregistered secondary - <u>Goldman Sachs</u> - CMLR
5/22/58	\$1,343,750	Minnesota & Ontario Paper 50,000 shs. common at 26 7/8. Unregistered secondary - <u>Goldman Sachs</u> - CMLR
8/14/58	\$1,602,000	Kaiser Industries Corp. 133,500 shs. common at 12. Unregistered secondary. <u>First Boston-Dean Witter-CMLR</u>
12/11/58	\$27,500,000	Arvida Corp. 2,500,000 shs. Class A common at 11. <u>CMLR-Dominick</u>
12/17/58	\$1,000,000	Belock Instrument Corp. Conv. Sub. Debs. 5 3/4 /73
12/30/58	\$14,644,253	Columbia Gas System 673,299 shs. common at 21 3/4. Registered secondary. <u>CMLR-Merrill Lynch</u>
1/12/59	\$6,562,500	Kaiser Industries Corp. 500,000 shs. common at 13 1/8. Registered secondary. <u>First Boston-Dean Witter-CMLR</u>
1/16/59	\$6,263,995	Hilton Credit Corp. 1,927,383 shs. common rights offer at 3 1/4
3/25/59	\$80,100,000	Great Atlantic & Pacific Tea Co. 1,800,000 shs. common at 44 1/2. Registered secondary. <u>Morgan Stanley-Smith Barney-Kuhn Loeb-CMLR</u>
6/10/59	\$2,598,750	International Harvester 30,000 shs. common at 46 5/8. Unregistered secondary
6/10/59	\$1,435,000	Louisville & Nashville R. R. 17,500 shs. common at 82. Unregistered secondary. <u>CMLR</u> - Bache
6/15/59	\$1,258,125	Mission Development Co. 55,000 shs. common at 22 7/8. Unregistered secondary. <u>CMLR-Dean Witter-A. M. Kidder</u>
6/15/59	\$1,060,500	Tidewater Oil Co. 42,000 shs. common at 25 1/4. Unregistered secondary. <u>CMLR-Dean Witter-A. M. Kidder</u>
7/30/59	\$2,410,000	CIT Financial Corp. 50,000 shs. common at 60 1/4. Unregistered secondary. <u>CMLR</u> Prescott-Shepard
8/6/59	\$4,225,000	Crowell-Collier Publishing 200,000 shs. common at 21 1/8. Registered secondary.

9/3/59	\$2,500,000	Gabriel Co. Sub. S. F. Debs. w/w 5 3/4 /74. <u>CMLR</u> -Prescott, Shepard
9/3/59	\$3,591,209	New York Capital Fund of Canada 1,000,000 shs. (reduced to 284,908 shs.) common at 13 3/4
10/29/59	\$30,000,000	Hilton Hotels Corp. Sub. Debs. w/w 6/84 <u>CMLR</u> -Merrill Lynch
12/16/59	\$ 511,438	Lehman Corp. 16,700 shs. common at 30 5/8. Unregistered secondary
2/2/60	\$4,625,000	Franklin Natl. Bank of Long Island 185,000 shs. common rights offer at 25. <u>Blair &amp; Co.</u> - <u>CMLR</u>
3/31/60	\$5,450,000	General Instrument Corp. 200,000 shs. common at 27 1/4
4/13/60	\$11,025,000	West Penn Electric Co. 300,000 shs. common at 36 3/4 (competitive)
4/22/60	\$6,000,000	Metropolitan Broadcasting Corp. Conv. Sub. Debs. 6/75. Kuhn Loeb- <u>CMLR</u>
5/4/60	\$26,950,000	Columbia Gas System 1,400,000 shs. common at 19 1/4 (competitive) <u>Merrill Lynch-Shields-Pressprich</u> - <u>CMLR</u>
5/17/60	\$4,305,741	Marquette Corp. 391,431 common at 11 (275,031 shs. new, 116,400 shs. registered secondary) <u>CMLR</u> -Piper Jaffray
5/23/60	\$ 700,000	Itek Corp. 10,000 shs. common at 70 Unregistered secondary. <u>Paine Webber</u> - <u>CMLR</u>
8/2/60	\$2,925,000	Kaiser Industries Corp. 300,000 shs. common at 9 3/4 registered secondary. <u>First Boston</u> -Dean Witter- <u>CMLR</u>
9/16/60	\$ 275,000	Shoe Corp. of America 10,000 shs. common at 27 1/2. Unregistered secondary. <u>CMLR</u> - D. H. Blair
10/6/60	\$5,408,928	Union Texas Natural Gas 150,248 shs. Class A and 75,124 shs. Class B at 24. Registered secondary. <u>CMLR</u> -Merrill Lynch-Smith Barney
10/25/60	\$3,300,000	Scantlin Electronics Inc. 250,000 shs. common at 12 (175,000 shs. new; 75,000 shs. registered secondary) <u>CMLR</u> -Paine Webber
10/28/60	\$1,595,000	Seaboard & Western Airlines Conv. Sub. Debs. w/w 6/70
11/1/60	\$2,475,000	Mid-States Business Capital Corp. 225,000 shs. common at 11. <u>CMLR</u> - Scherck, Richter
11/28/60	\$2,112,480	Seaboard & Western Airlines 704,160 shs. common rights offer at 3

1/25/61	\$2,985,323	Emerson Electric Manufacturing Co. 54,033 shs. common at 55 1/4. Registered secondary. <u>CMLR</u> -Scherck, Richter
3/8/61	\$15,108,450	Apco Oil Corp. 100,723 units of Sub. Debs. 5 3/4/81 and common rights offer at \$150. <u>CMLR</u> -Smith Barney
4/25/61	\$1,760,000	Adler Electronics, Inc. 160,000 shs. common at 11 (110,000 shs. new, 50,000 shs. registered secondary)
5/2/61	\$1,700,000	Aqua-Chem Inc. 340,000 shs. common at 5 (227,000 shs. new, 113,000 shs. registered secondary) <u>CMLR</u> -Loewi
5/9/61	\$11,787,700	Crowell-Collier Publishing Co. Conv. Sub. Debs. 4 1/2/81. Rights offering at \$100
5/10/61	\$3,392,400	Kawacki Chemical Co. Conv. Sub. Debs. 4 7/8/76. Rights offer at \$100
6/21/61	\$1,192,500	Crowell-Collier Publishing Co. 30,000 shs. at 39 3/4. Unregistered secondary
8/3/61	\$5,000,000	Transcontinent Television Corp. 400,000 shs. Class B at 12 1/2. <u>CMLR</u> -Bear Stearns
8/24/61	\$32,648,300	Armour & Co. Conv. Sub. Debs. 4 1/2/83. Rights offer at \$100. <u>Wertheim-Glore-CMLR</u>
12/14/61	\$2,292,500	Harsco Corp. 70,000 shs. common at 32 3/4. Unregistered secondary
12/19/61	\$1,510,000	Cramer Electronics, Inc. 188,750 shs. common at 8 (87,250 shs. new, 101,500 shs. reg. secondary) ( <u>CMLR</u> & Co., Inc.)
* * * *		
2/20/62	\$2,416,000	American Building Maintenance Industries 151,000 shs. common at 16 (40,000 shs. new, 111,000 shs. reg. secondary) <u>CMLR</u> & Co., Inc. - Sutro & Co.
3/22/62	\$1,875,000	Hayden Publishing Co. 150,000 shs. common at 12 1/2 (20,000 shs. new, 130,000 shs. reg. secondary) ( <u>CMLR</u> & Co., Inc.)
4/27/62	\$437,000	Potash Co. of America 19,000 shs. common at 23. Unregistered secondary. <u>CMLR</u> & Co., Inc. - Boettcher

\* \* \* \*



1/8/63	\$1,400,000	Belock Instrument Corp. Conv. Sub. Debs. 6/75 <u>CMLR &amp; Co., Inc. - Bear Stearns</u>
4/2/63	\$1,512,500	Continental Device Corp. 275,000 shs. common at 5 1/2 ( <u>CMLR &amp; Co., Inc.</u> )
4/19/63	\$5,429,900	Crowell-Collier Publishing Co. Conv. Sub. Debs. 5/83 Rights offer at \$100
4/24/63	\$12,307,240	Cabot Corp. 296,560 shs. common at 41 1/2. Registered secondary. <u>CMLR &amp; Co. - White Weld</u>
9/4/63	\$12,113,112	Allied Chemical Corp. 237,512 shs. common at 51. Registered secondary. <u>Smith Barney-CMLR</u>
9/12/63	\$ 559,375	Coca Cola Bottling Co. of New York 25,000 shs. common at 22 3/8. Unregistered secondary. <u>CMLR-Elder</u>
12/63	\$5,000,000	Canon Camera Kabushiki Kaisha Conv. Unsec. Loan Stock 6 1/4/78. Sold outside U.S. <u>M. Samuel &amp; Co. -</u> <u>Vickers DaCosta-CMLR-Yamaichi Securities</u>

\* \* \* \*

6/2/64	\$200,000,000	Communications Satellite Corp. 5,000,000 shs. common at 20. <u>Merrill Lynch-Blyth-First Boston-Kidder Peabody-</u> <u>Kuhn Loeb-Lazard-Lehman-CMLR-Paine Webber-White Weld-</u> <u>Dean Witter</u>
6/23/64	\$25,000,000	Instituto per la Ricostruzione Industriale (IRI) Bonds w/v 5 3/4/75-79. Sold outside U.S. <u>CMLR-Banque</u> <u>Lambert-M. Samuel-Berliner Handels-Gesellschaft</u>
8/11/64	\$8,000,000	Hooker Chemical Corp. 200,000 shs. common at 44. Unregistered secondary. <u>White Weld-CMLR-R.W. Pressprich</u>
9/14/64	\$2,275,727	Taft Broadcasting Co. 57,251 shs. common at 39 3/4. Unregistered secondary. <u>Bache-CMLR</u>
12/29/64	\$5,499,762	Philippine Long Distance Telephone Co. 953,165 shs. common rights offer at 5.77

\* \* \* \*

2/12/65 \$25,514,615 Armour & Co. 614,810 shs. common rights offer at 41 1/2.  
Wertheim-Glore-CMLR

2/26/65 \$7,876,000 Taft Broadcasting Co. 176,000 shs. common at 44 3/4.  
Registered secondary

5/13/65 \$2,317,250 Chicago Musical Instrument Co. 74,750 shs. common  
at 31. Unregistered secondary

5/26/65 \$5,512,500 Thatcher Glass Manufacturing Co. 175,000 shs. common  
at 31 1/2. CMLR-Lehman

12/3/65 \$12,000,000 General Instrument Corp. Conv. Sub. Debs. 4 1/4/85

\* \* \* \*

4/14/66 \$150,000,000 Allied Chemical Corp. Debs. 5.20/91 Lazard-Lehman-CMLR

4/20/66 \$20,000,000 Seaboard World Airlines, Inc. Conv. Sub. Debs. 5/86

6/1/66 \$25,000,000 Cities Service International Capital Corp. Gtd. Notes  
6 3/8/71. Offered outside U.S. First Boston-CMLR

6/14/66 \$17,201,880 Allied Chemical Corp. 430,047 shs. common at 40.  
Registered secondary. CMLR-Smith Barney

6/17/66 \$15,000,000 High Authority European Coal & Steel Community  
6 1/2/86. Offered outside U.S. Banca Commerciale  
Italiana - S.G. Warburg-Banca Nazionale de Lavoro-  
Banque de Paris-Deutsche Bank-Dresdner Bank-Lazard  
Freres (Paris) CMLR-Banque Internationale a  
Luxembourg

6/20/66 \$6,113,020 Allied Chemical Corp. 154,760 shs. common at 39 1/2.  
Unregistered secondary. CMLR-Smith Barney

9/13/66 \$10,000,000 Cabot International Capital Corporation Gtd. Notes  
7/71. Offered outside U.S. CMLR-White Weld

12/12/66 \$15,000,000 Americas Holding S.A. Gtd. Notes 6 5/8/71. Offered  
outside U.S. CMLR-Banque de Paris-Banca d'America  
e d'Italia - Lehman

**DOLLAR TOTALS - UNDERWRITING PARTICIPATIONS**  
**CARL M. LOEB, RHOADES & CO. and CARL M. LOEB, RHOADES & CO. INCORPORATED**

<u>YEAR</u>	<u>BONDS</u>	<u>PREFERRED STOCKS</u>	<u>COMMON STOCKS</u>	<u>TOTAL</u>
1955	\$33,921,698	\$3,083,785	\$26,004,028	\$63,009,511
1956	23,616,000	3,552,000	25,835,000	53,003,000
1957	37,491,000	4,189,000	28,110,000	69,780,000
1958	44,921,392	3,502,873	21,917,247	70,341,512
1959	28,686,158	2,104,820	36,384,021	67,174,999
1960	31,238,000	1,462,346	17,856,818	50,557,164
1961	40,244,529	1,465,084	27,845,573	69,555,186
1962	37,167,518	2,980,088	12,018,445	52,166,051
1963	38,806,642	None	19,066,609	57,873,251
1964	31,243,806	5,227,425	23,596,799	60,068,030
1965	62,669,764	5,783,236	32,780,127	101,233,127
1966	100,398,874	8,126,080	44,125,870	152,650,824

Private Placements in which CMLR acted as Agent or Participant 1955 - 1966

ADLER ELECTRONICS, INC.

May 1962 \$2,000,000 Conv. Sub. Notes 1972

ANGLO-AMERICAN SHIPPING CO. LTD. (CMLR - M. SAMUEL & CO. LTD.)

1959 £ 5,000,000 7% Secured Loan Stock  
£ 5,942,475 5 1/2% Secured Notes  
£ 2,500,100 Ordinary Shares of £ 1

APCO OIL CORP.

June 1962 \$2,500,000 Series A Notes 1965  
\$9,500,000 Series B Notes 1981

AUDIO DEVICES INC.

1957 100,000 shs. Common with Warrants  
Dec. 1961 \$1,500,000 Conv. Sub. Notes 1976

BELOCK INSTRUMENT CORP.

1960 \$1,200,000 6% Notes with Warrants

CANTIERI RIUNITI DELL-ADRIATICO S.p.A.

March 1965 \$13,000,000 Ship Construction Loans

CONSTRUCCIONES POPULARES, S.A. de C.V. (HONDURAS)

Dec. 1965 \$6,575,000 5 1/4% 20 year notes

CONTINENTAL DEVICE CORP.

March 1965 \$2,000,000 Notes due 3/1/77

CRAMER ELECTRONICS INC.

Oct. 1966 \$750,000 Sub. Notes due 1980

DIXIE PIPELINE CO. (FIRST BOSTON-MORGAN STANLEY-CMLR)

Aug. 1961 \$37,500,000 Secured Notes 5/86

FRONTIER REFINING CO.

1955 \$1,500,000 1st 4/69  
1957 \$1,500,000 1st 6/72  
1960 \$1,500,000 1st 6 1/4/75

GULF INTERSTATE GAS CO.

Nov. 1958 \$60,000,000 1st Pipe Line 5/78 (CMLR-MLPFS)

HESS OIL & CHEMICAL CORPORATION

July 1963 \$30,000,000 5 1/2% Promissory Notes 1964 - 80



**INMOBILIERA CALIFORNIA S. A. (Venezuela)**

July 1966 \$8,000,000 5 1/4% 20 Year Notes

**INTERNATIONAL HOUSING CAPITAL CORP.**

Nov. 1963 \$9,100,000 Notes 1979 - 82

**HENRY J. KAISER CO. (FIRST BOSTON: CMLR participated in placement)**

1957 \$25,000,000 Collateral 5 3/4/69

**HENRY J. KAISER CO. - KAISER INDUSTRIES CORP. (FIRST BOSTON:  
CMLR participated in placement)**

1960 \$10,000,000 Gtd. Conv. Coll. 6/72

**KAWECKI CHEMICAL CO.**

July 1958 \$1,500,000 Sub. Conv. Notes 5/68

**KIRKEBY-NATUS CORP. (CMLR-NEW YORK SECURITIES)**

June 1964 \$11,000,000 Senior Notes 1974

**E. J. KORVETTE INC.**

July 1963 \$24,000,000 5 3/8% Notes 1983

Oct. 1963 \$6,000,000 5 3/8% Conv. Notes 1983

**METROMEDIA, INC. (KUHN LOEB-CMLR)**

Aug. 1961 \$3,000,000 Senior Notes 6 1/4/71

\$4,000,000 Junior Notes 6 1/4/75 with Warrants

30,000 Shares \$3.125 Conv. Pfd.

July 1963 \$7,500,000 5 3/4% Notes 1978

**MIAMI COPPER CO. - TENNESSEE CORP.**

June 1960 \$15,000,000 Reserved-in-ore (Royalty payment)

**MILGO ELECTRONIC CORP.**

March 1965 \$1,250,000 Notes W/W 1977

**NATIONAL PROPANE CORP.**

1955 \$5,000,000 Notes 4 3/4/70

\$2,000,000 Sub. Notes 5/75

45,000 Shares Common Stock

June 1957 \$600,000 Notes 5 1/2/72

June 1958 \$500,000 Senior Notes 5/73

Nov. 1960 60,000 Shares Common Stock

\$2,500,000 Notes 6/75

Oct. 1962 \$2,525,000 Senior Notes 5 3/4/78

June 1963 \$12,750,000 Senior Notes 1972 and 1983

Nov. 1964 \$1,600,000 Notes of Subsidiaries 1983

**NESTOR FINANCE CORP.**

July 1958 \$12,730,000 Coll. Trust Bonds 5/69

DX270, Part I, page 14  
(Report of Loeb, Rhoades & Co.)

## NORSTAR SHIPPING CO. S.A.

Mar. 1960 \$28,500,000 5 1/2/67 - 71

## NORTEX OIL &amp; GAS CORP.

1957 170,324 Shares (secondary)

## PENOBSCOT COMPANY (CMLR-FUTNAM, COFFIN &amp; BURR)

Mar. 1965 \$16,000,000 Notes 1980

## PRINCE ALBERT PULP COMPANY LTD.

Apr. 1966 \$46,500,000 5.20% Gtd. Notes

## PROYECTO VIRU. S. A. (PERU)

Dec. 1965 \$4,000,000 5 1/4% 20 year notes

## QUANTATRON, INC.

Dec. 1960 \$1,590,000 Notes 5 3/4/64-69  
5,000 Shares \$100 par pfd.  
10,000 Shares Common Stock

## SAKURA FINANCE CORP.

July 1958 \$12,000,000 Coll. Trust Bonds 5/69

## SEA DRILLING CORP.

1958 \$2,040,000 Notes 4 1/2/66

## JOSEPH E. SEAGRAM &amp; SONS INC. (HARRIMAN RIPLEY-CMLR)

Dec. 1963 \$75,000,000 Notes due 1989

## STEELMAN GAS LTD. (CMLR-ANNETT &amp; CO. LTD)

June 1958 \$4,000,000 (U.S.) 1st 6/70 with Warrants  
\$2,000,000 (Can.) 1st 6/70 with Warrants

## JNO. H. SWISHER &amp; SONS INC.

Oct. 1966 \$20,000,000 Notes 1986

## TAFT BROADCASTING CO.

Apr. 1964 \$19,800,000 5 7/8% Notes 1979

## TALCO ENGINEERING CORP.

1958 \$200,000 Sub. Notes 5 1/4/62  
40,000 Shares Common Stock

## TEXAS BUTADIENE &amp; CHEMICAL CORP.

1956 \$27,500,000 1st 5/63  
\$1,986,766 Notes 5/70  
2,484 Shares Pfd.

## TEXAS NATURAL TRANSPORTATION

1955 \$1,474,875 Notes - 4%

## THATCHER GLASS MANUFACTURING CO. (CMR - LEHMAN BROTHERS)

Dec. 1963 \$18,450,000 Notes 1983  
\$3,000,000 Sub. Notes 1983

## WASHINGTON POST CO.

Dec. 1963 \$20,000,000 5 1/2% Notes 1979

DX270, Part II  
(Report of Loeb, Rhoades & Co.)

PART II

PART  
II

Report of  
Loeb, Rhoades & Co.

re:

Drexel Harriman Ripley, Inc.  
Financing Plan Dated May 2, 1966



TABLE OF CONTENTS

	<u>Page No.</u>
I. Questions Posed .....	1
II. Conclusions .....	3
III. Discussion .....	4
A. Introduction .....	4
B. The Status of the Airline Industry in Early 1955 .....	5
C. The Proposed Financing .....	12
1. The Morehouse "Fundamental Principles" .....	12
2. The Spring 1955 Equity Financing .....	15
(a) The Keystone Step .....	15
(b) No Need for Equity in Early 1955 .....	15
(c) Excessive Size of the Proposed Equity Financing .....	16
(d) Premature Nature of the Proposed Equity Financing .....	18
(e) Damaging Effect on TWA's Stockholders .....	21
(f) Alternative Assumptions as to Toolco .....	25
3. The Balance of the Financing Plan .....	28

DX270, Part II  
(Report of Loeb, Rhoades & Co.)

	<u>Page No.</u>
(a) The October 1, 1955 \$150-170 Million Debt Financing .....	29
(b) The May 1959 \$60 Million of Convertible Debentures ..	32
(c) The May 1959 \$90-110 Million Loan Commitment ....	33
D. The Feasibility of TWA Independently Financing the Projected Capital Requirements of \$544.8 Million .....	35

# I. Questions Posed

Donovan Leisure Newton & Irvine has asked Loeb, Rhoades & Co., a partnership, to review a plan of financing entitled "The Financing Of Trans World Airlines, Inc. During the 1955-1960 Period," dated May 2, 1966, and presented in the form of written testimony by Edward J. Morehouse, Senior Vice President of Drexel Harriman Ripley, Inc. (DHR) and to render its opinion as investment bankers with respect to:

1. Whether the officers and directors of TWA, assuming them to have been prudent and competent in the management of its affairs, and to have had due regard for the interests of TWA and its stockholders, would have accepted and implemented the equity financing plan suggested by Mr. Morehouse to have been engaged in in late May or early June of 1955.

2. Whether Loeb, Rhoades & Co. would have recommended to TWA or to its stockholders the said equity financing plan proposed by Mr. Morehouse.

3. Whether the opinions given in response to the foregoing questions would be altered by either of the following assumptions:

(a) that TWA could not or would not have looked to Hughes Tool Company (Toolco) for assistance in the said equity financing proposed by Mr. Morehouse; or

(b) that TWA was a widely-held company with no controlling stockholder.

4. Whether TWA, without the assistance of Toolco, could have accomplished the other and later financing steps proposed by Mr. Morehouse in his testimony, to wit:

(a) the obtaining of a loan commitment in the amount of \$150-170 million on October 1, 1955; (b) the issuance of \$60 million 5% convertible subordinated debentures on a non-pre-emptive basis in May of 1959; and (c) the obtaining of a commitment for a \$90-110 million mortgage loan in May of 1959; and

5. Whether TWA, without the assistance of Toolco, could have financed the "reconstructed" capital requirements of \$544.8 million during the period October 1955 through December 1960.



II. Conclusions

The following is a summary of our conclusions:

The equity financing plan suggested by DHR in the Morehouse testimony as of the Spring of 1955 would have been a plan so contrary to the best interests of TWA and its stockholders that it would not have been accepted or implemented by prudent and competent officers and directors of that company.

We would not have recommended to TWA or to its stockholders that TWA engage in Mr. Morehouse's proposed equity financing in the Spring of 1955. It could not have been accomplished without Toolco actively participating by subscribing to its proportionate share of the proposed equity offering, and it would not have been in the best interests of TWA's stockholders for Toolco to have done so at that time.

Our opinion that TWA would have rejected Mr. Morehouse's 1955 equity financing plan is the same on the assumptions that TWA could not or would not have looked to Toolco for assistance in such a financing, or that TWA was widely held with no controlling stockholder.

Lastly, TWA without the assistance of Toolco, could not have financed the so-called "reconstructed" capital requirements of \$544.8 million during the period October 1955 through December 1960, on any reasonable basis.

### III. Discussion

#### A. Introduction

Mr. Morehouse's written testimony and exhibits, despite the labor devoted to their presentation, are no more than an exercise in a hypothetical financing conducted without regard to certain important historical facts and yet with the benefit of hindsight on such things as the peaks of the stock market for airline stocks. This is no criticism of Mr. Morehouse or of DHR, who, pursuant to counsel's instructions, prepared an academic answer to an academic question. We have examined that exercise in the light of important historical facts, which cannot be ignored. Only thus can its validity be tested.

The conclusions and opinions expressed herein reflect in particular, the views of Armand G. Erpf, Kenrick S. Gillespie and Gene M. Woodfin. During the period of time in question, 1955-1960 and earlier, both Mr. Erpf and Mr. Gillespie closely followed the airlines with a view to giving investment advice to Loeb Rhoades clients. Mr. Woodfin is one of the partners in charge of the Corporate Department which has the responsibility of handling the buying functions and private placements of Loeb Rhoades, and, as such, is particularly familiar with

the various factors which must be considered in connection with advising or participating in offerings or private placements such as those suggested in the testimony of Mr. Morehouse.

In formulating the opinions expressed herein, we have utilized the Loeb Rhoades Research Department facilities, its library and its personnel to assist in our review of contemporaneous information for the 1946-1960 period. Materials reviewed include aviation and financial publications, airline annual reports, and SEC and CAB documents and exhibits. In addition, we have consulted with various of our partners and with members of our staff who are and have been knowledgeable in the area of airline finance.

B. The Status of the Airline Industry  
in Early 1955

It is essential to examine any proposed equity financing of TWA in early 1955 in the light of the then existing facts. Mr. Morehouse tends to take the euphoria of the investment community's attitude toward the air transport industry today, and apply it to a period when the investor's attitude toward the future of the airlines was steeped in doubt and skepticism.

The airline industry of early 1955 was very different from what it was in 1960 after a full year of jet operations and even more different from what it is today. Today's maturing adult was a baby in early 1955 and only a child in 1960. For example, total domestic trunk passenger revenues produced in scheduled service were \$872,125,000 in 1954, \$1,756,439,000 in 1960 and \$2,908,045,000 in 1965. Overall available ton miles in scheduled service for domestic trunk airlines were 3,297,122,000 in 1954, 6,548,473,000 in 1960 and 12,593,477,000 in 1965. Total revenue passenger miles in scheduled service for the domestic trunk airlines were 16,234,638,000 in 1954, 29,233,199,000 in 1960 and 48,986,972,000 in 1965\*. In short, it would be fallacious to view the airline industry of early 1955 as it is viewed today.

Unquestionably the greatest uncertainty facing the airlines in early 1955 was the anticipated coming of the jet age to commercial aviation. There were no commercial jet aircraft actually available at that time and no one knew the answers to the many questions airline executives were pondering: When would commercial jet aircraft become

---

\* 1965 CAB Handbook of Airline Statistics, pp. 38, 47, 103; CAB Air Carrier Traffic Statistics, Vol. XII-12 for 12 months ending Dec. 31, 1966; p. 2; CAB Air Carrier Financial Statistics, Dec. 31, 1965, Vol. XIII-4, p. 2. Statistics for the year 1965 are given in lieu of 1966 statistics because of the effect of the strike on 1966 statistics.



available for ordering? Who would build them? Would they be turbo-prop or turbo-jet, or both? How large would they be? How much would they cost? When would they be delivered? To what extent and when would they replace piston operations? Would they win a high degree of public acceptance? How many would the airlines purchase? Could airport facilities be improved in time?

As Mr. Morehouse pointed out at page 6 of his report, none of the airlines, in early 1955, could have estimated with any degree of certainty how much capital would be required for the purchase of jet aircraft. At the same time it would have been obvious to anyone knowledgeable in the airline and aircraft industries that only down payments and perhaps progress payments would be required in the early years, with the heavy money requirements coming three, four or five years after orders were placed.

A further uncertainty facing the airlines at that time, especially the Big Four domestic trunk airlines (American, United, Eastern and TWA) was the prospect of a substantial increase in competition in the domestic trunk airline industry as a result of new route awards expected during 1955. Several major route cases were pending in early 1955, and with most of the major trunk airlines operating free of subsidy, the CAB was expected to make a

major reappraisal of the nation's airline routes in the course of deciding these cases.

In early 1955 the ability of the airline industry to obtain equity financing was extremely limited, as is apparent from the history of airline financing during the post-war years. Attached hereto as Exhibit A is a compilation of airline financing for the period 1946-1960, from which the paucity of equity financing during the 1950's is clearly evident.

Among Pan American,\* United, American and Eastern, the first equity financing done after the sale of \$40.8 million 3-1/2% cumulative convertible preferred by American on June 11, 1946,\*\* was the offering by United to its common shareholders on March 19, 1952 of 223,865 shares of 4-1/2% convertible cumulative preferred stock (convertible to common prior to 1962) at \$100 per share

---

\* On July 3, 1945 Pan American sold \$43.4 million of capital stock through an underwritten offering of capital stock with stock purchase warrants attached. 2,043,261 units were sold at \$21.50 each unit consisting of one share of capital stock and a stock purchase warrant for an additional share exercisable at \$18 a share. Because of the market decline beginning in 1946, very few of the warrants were exercised. (See DHR Exhibits: Pan American 1 and 2.)

\*\* The American 3-1/2% convertible preferred stock issue (DHR Exhibit: American 3) may well have been one of the reasons why comparatively little convertible financing was undertaken by the airlines thereafter. The preferred stock dropped precipitatively in price shortly after issuance. The market price was well below par value for about 8 years. The market price of the common stock did not reach the conversion price based on redemption until December 1954. (See McClintock, Exhibit No. U-3.0, Docket No. 8008, pp. 67-8, attached as Exhibit B.)

on a basis of 1 share of preferred to every 11 shares of common (Exhibit A and DHR Exhibit: United 4.) 81,510 shares (36%) were subscribed for. The underwriters on this issue, led by Harriman Ripley, had to pick up 142,355 shares or nearly 64% of the issue. There was no other equity financing by any of these airlines until the 1958-60 period.

Attached hereto as Exhibit C is a compilation of all the common stock offerings by domestic trunk airlines during the period January 1946 to June 1957. It is readily discernible that common stock offerings were rare and in very small dollar amounts during that period. The larger offerings were those of TWA in 1952 totalling \$10.7 million (DHR Exhibits: Trans World 2 and 3), that of TWA in 1957 of \$43.4 million (DHR Exhibit: Trans World 7), that of Braniff in 1956 of \$11.1 million (Braniff Prospectus, August 7, 1956), and that of Northeast in 1956 of \$7.5 million (Northeast Prospectus, December 11, 1956). Each of these was underwritten in whole or in part by a principal shareholder. TWA offerings underwritten or guaranteed by the Hughes Tool Company accounted for over 30% of the common stock financing done by all the domestic trunk airlines through 1955 and for over 50% of such financing done through June of 1957.

The history of equity financing during the post-war piston era was summarized as follows in the initial

decision of Examiner Ralph L. Wiser in General Passenger Fare Investigation Case (Dkt. 8008) dated May 27, 1959:

"An outstanding phenomenon of the airlines' postwar financial record has been the paucity of direct equity financing by either rights subscriptions or public offerings. A compilation presented by bureau counsel shows that between January 1, 1946, and June 30, 1956, the airlines had total financing of \$604 million, of which \$214 million, or 35 percent, came from long-term debt; \$16 million, or 3 percent, came from preferred stock; and \$374 million, or 52 percent, came from common stock (\$171 million) and retained earnings (\$203 million). However, most of the common-stock funds came from conversion of senior securities and only \$39 million, or 6 percent of total funds, came from public sale of airline equities (i.e., subscription offering and direct offering). While there is much discussion of needs for ability to raise equity capital, the same general pattern of primary reliance upon debt and retained earnings is planned by the air carriers for the next few years." 32 CAB 291, 361-62.

This dearth of equity financing was not by design. The airlines were forced to rely on debt financing during the post-war piston era because airline equities had no investment status and most airlines were simply unable to obtain equity financing. For example, W. C. Barkes, Vice President of Finance and Property for United Airlines, explained United's 1955 debt financing program in testimony before the CAB in 1957 in the General Passenger Fare Investigation as follows (United Ex. U-2, Docket No. 8008, pp. 12-13; attached hereto as Exhibit D):

"The 1955 financing program for United was handled entirely by arranging for issuance of debt. This was not a matter of choice, for the ability of United, as well as the industry, to sell equity has been limited. That further increase in equity is necessary and desirable is apparent, but it is equally apparent that it cannot be accomplished satisfactorily until the present period of depressed earnings is brought to an end."

In 1955 airline shares were speculative securities and they were not held in quantity by institutional investors. The CAB took note of this fact in its decision in the General Passenger Fare Investigation:

"Airline securities represent only .58 percent of the total assets of the 43 largest investment houses, 13 of which disposed of all airline holdings by the end of 1957. Holdings of airline stock by 20 of the largest open-end investment houses declined between 1946 and 1955 from 1 percent to 0.3 percent. Holdings of 28 leading closed-end investment companies declined from 0.5 percent at the end of 1955 to 0.2 percent during the middle of 1957. Less than 0.04 percent of insurance company corporate stock investment was in airline securities." 32 CAB, 291, 303, fn. 29.

Unable to accomplish any substantial amount of equity financing, the airlines financed equipment purchases chiefly out of earnings, cash accumulations from fast depreciation and tax amortization certificates and short-term bank credits. Long-term debt was obtained only infrequently and then the maximum term was generally not



more than 20 years. As of the end of the first half of 1955 none of the airlines had obtained any financing for jet aircraft. Pan American did arrange for a long-term (25 years) \$60 million loan from a group of insurance companies in May 1955, but this as well as all other airline financings done prior to the Fall of 1955 was for the purpose of financing the acquisition of piston aircraft. (Exhibit A).

C. The Proposed Financing

1. The Morehouse "Fundamental Principles"

At pages 4-5 of Mr. Morehouse's written testimony there are stated three "fundamental principles" which he says should have been followed in airline finance during the 1955-1960 period: (a) the airline should get, or endeavor to get, its equity or junior capital prior to or simultaneously with getting its senior borrowed capital; (b) the airline should own its own equipment rather than lease it from other parties; and (c) contractual commitments for capital expenditures should be prepared for reasonably in advance of the time they are to become due. Principles (a) and (c), are, of course, related.

We believe that it is unrealistic to postulate a set of principles to which diverse companies in a growth industry with varying needs and abilities should conform.

In the real world of finance an individual company's needs and abilities determine the principles by which it finances.

The relevance to his report of Mr. Morehouse's second principle, that an airline should own rather than lease its equipment, escapes us. We know of no such general principle. A decision as between ownership and leasing must depend upon the facts of each particular situation and requires not only a comparison of the relative costs, including the cost of capital, but also a determination of a company's needs and objectives. We do not attempt to set forth here the reasons why an airline might choose to lease rather than own equipment, but note that leasing of aircraft took place during the 1955-1960 period and remains a fairly common practice in the airline industry today.

With respect to Mr. Morehouse's first principle, getting equity prior to or simultaneously with senior debt, it is our experience that most companies raise funds through the sale of common equity or convertible securities only when the need therefor is clearly demonstrable. It is common practice for a lending institution to make a commitment to lend senior debt conditioned upon equity or subordinated debt financing being done prior to or contemporaneous with the later takedown of the senior funds. A well organized financing plan raises equity only when required, not in unknowing anticipation of possible future needs some years away.

As we shall show below, the fact of the matter is that historically no major airline followed Mr. Morehouse's first principle. The facts indicate that during the 1955-1960 period none of the airlines sold equity or securities convertible into equity until the latest date possible and then in amounts as minimal as possible. This is reasonable and what one would expect, rather than the converse suggested by Mr. Morehouse's first principle.

Mr. Morehouse's third principle, that contractual commitments for capital expenditures should be prepared for reasonably in advance of the time they are to become due, is difficult to quarrel with as a general proposition. The statement of the principle, however, totally fails to answer the important questions of timing and amount. No guidelines are given as to how much money should be raised, by what method or what is meant by "reasonably in advance."

In short, we do not believe that a realistic financing program can be devised or reconstructed upon any such a set of principles of airline finance. Instead, a careful analysis of the factual situation existing in the securities markets, the airline industry at large, and the individual company is required.

2. The Spring 1955 Equity Financing

(a) The Keystone Step

The financing plan for TWA as postulated by Mr. Morehouse has as its keystone a one-for-one pre-emptive equity offering proposed for the Spring of 1955.

It is apparently the opinion of Mr. Morehouse (Tr. pp. 3981, 4313-14) that the program suggested in his written testimony depends upon the success of the proposed Spring 1955 equity offering. Consequently, if this part of the program should not prove feasible the subsequent steps suggested fall of their own weight.

(b) No Need for Equity in Early 1955

We doubt that any TWA management would have been persuaded by Mr. Morehouse's "proprietary capital" argument that TWA was short of proprietary capital in comparison with the other airlines in early 1955 (pp. 8-10, Morehouse Report). We know of no airline that bases its equity or debt financing plans upon its relationship to other airlines using "yardsticks" such as those formulated by Mr. Morehouse.

Even using Mr. Morehouse's yardsticks and accepting the airlines he selected for comparison, TWA's "shortage" of proprietary capital ranges all the way from \$13 million to \$74 million. In addition, when TWA is compared with Eastern, the fourth member of the Big Four domestic

trunks, which Mr. Morehouse chose to ignore in this part of his discussion, it would appear by his own yardsticks that TWA was over-capitalized in early 1955 by \$19 million. (p. 10, Morehouse Report and Exhibit E). A guide to the need for proprietary capital which produces results ranging all the way from \$19 million over-capitalization to a "shortage" of \$74 million is no guide at all.

A widely accepted measurement of the strength of a company's capital structure is its debt-equity ratio. On that basis, TWA with its ratio of 78.4% equity to 21.6% debt (p. 10, Morehouse Report) was in a better financial position than American, United and Eastern and equally as well off as Pan American.

Clearly these figures show no urgent need by TWA for equity funds. While it likely was recognized by all of the airlines and by their financial advisers in the forepart of 1955 that, at some time in the future, both additional equity and debt financing would be required by each of them to meet the oncoming jet age, no one could be sure of "when" or of "how much."

(c) Excessive Size of the Proposed Equity Financing

We have already noted in B above (pp. 5-12) that airline common stock offerings from 1946 through 1955 were not only rare, but undertaken in very small dollar amounts.



As shown in Exhibit C there were 17 common stock offerings from January 1946 through December 1955 by domestic trunk airlines for a total of \$47,179,924. This was an average of \$2,775,290 for each offering, even including those underwritten by majority stockholders.

The largest single offering by a domestic trunk airline during the period was by Braniff in 1955 for \$5,758,050. The success of this offering and the TWA offerings in 1949 of \$4,041,120 and in 1952 of \$5,116,448 and \$5,661,152 was guaranteed prior to each offering by a controlling stockholder (Braniff Prospectus, May 12, 1955; TWA Prospectus, February 18, 1949; DHR Exhibits: Trans World 2 and 3). Moreover, the success of the three largest common stock offerings in the year and a half subsequent to 1955 (Braniff \$11,055,450 in 1956, Northeast \$7,451,819 in 1956 and TWA \$43,381,468 in June 1957) was similarly assured. (Braniff Prospectus, August 7, 1956; Northeast Prospectus, December 11, 1956; DHR Exhibit: Trans World 7).

It is clear that the \$58.4 million common stock offering proposed by Mr. Morehouse for the Spring of 1955 would have been of astounding size, exceeding by more than \$11 million the sum total of all domestic trunk common stock offerings during the 1946-1955 period. (Exhibit C). While TWA historically had raised equity during the 1946-1955 period

through the sale of common stock, the total amount aggregated not quite \$15 million. It was raised in three separate offerings, the largest of which was less than one-tenth as large as that proposed by Mr. Morehouse, and was accomplished only through the very substantial and guaranteed assistance of its controlling stockholder, Toolco. To suggest, as Mr. Morehouse does, that TWA or any other domestic trunk airline, could have sold in the Spring of 1955 what was a theretofore unheard of dollar amount of stock is in our opinion utterly unrealistic, unless a financially sound majority stockholder for some reason insisted upon it and agreed in advance to assure its success.

(d) Premature Nature of the Proposed Equity Financing

To have accomplished an offering of \$58.4 million of common stock in the Spring of 1955 Mr. Morehouse would have to have made his recommendations to TWA and had them accepted early in 1955.

It is common knowledge that in early 1955 there were not yet any jet aircraft available for order by TWA or any other airline and that the magnitude of the orders and investment required by the airlines was unknown. We agree with Mr. Morehouse (p. 6) that, while it was generally recognized that the amounts would be very large,

none of the airlines could estimate with any degree of certainty just how much additional capital would be required. Certainly no airline management could have foreseen in early 1955, when or in what amounts, funds would be required for the purchase of jet aircraft. No major airline saw fit, or (as we pointed out in B above at pp. 5-12) was able, to raise any equity in 1955. (Exhibit A).

Pan American was the first carrier to order jets. In October of 1955 it placed a \$269 million order for 25 Douglas DC-8s and 20 Boeing 707s. Pan American had arranged for a \$60 million insurance loan on May 10, 1955 to increase working capital and to acquire 7 DC-7Bs and 33 DC7-Cs, all piston aircraft. On December 19, 1956, it borrowed \$30 million to provide payment for 9DC-7s and make advances on 23 707s and 21 DC-8s. It was not until July 29, 1959 that Pan American did any equity financing. In that year it had a rights offering of \$46.97 million of 4-7/8% convertible subordinated debentures, convertible at \$30 per share.

By the end of 1955 Eastern had ordered 19 DC-8s at a cost of \$130 million, with options for 7 others. Eastern had also ordered 40 Electras costing \$100 million with options on 30 more. Eastern, on October 31, 1955, entered into a credit agreement with Equitable for a total amount of \$90 million which was to retire previous bank

loans and provide funds to finance aircraft purchases, including pistons. On October 21, 1958, Eastern sold to Prudential \$25 million of convertible subordinated 5% notes, convertible at \$41 per share.

American ordered 30 707s in November of 1955 and made arrangements on November 1, 1955 for the private placement of \$75 million of 4% notes and on September 1, 1956 for the private placement of \$60 million of 4-1/4% notes, the funds to be added to general funds and to be available for the purchase of jet aircraft. It was not until June 18, 1959 that American raised any equity. It then sold \$40 million of 5% convertible subordinated debentures.

United ordered 30 DC-8s at a cost of \$175 million in late October of 1955. It also ordered 45 four-engine piston aircraft, for a total commitment of \$254.5 million. It arranged with three insurance companies on December 22, 1955 to borrow a maximum of \$120 million prior to March 1, 1959. At the same time it arranged a \$30 million standby revolving credit with the First National City Bank and 37 other banks. On December 20, 1957 it arranged for another \$130 million of bank credit. It was not until November of 1960 that it sold \$25 million of 4-7/8% convertible subordinated debentures.

The actions of these airlines clearly indicate that competent management did not raise equity in the mid-1950's as a part of long-range financing for the purchase of jet aircraft.

Finally, as is demonstrated by the "Application of Proceeds" appearing on page 22 of Mr. Morehouse's testimony, TWA had no use for equity funds in the Spring of 1955. The major dollar portion of the proceeds, \$35 million, was to be used to pay off a 15-year 3-3/4% equipment mortgage loan which had just been arranged in December 1954 with Equitable. (DHR Exhibit: Trans World 4). The remainder was to liquidate other obligations so as to leave TWA debt free.

(e) Damaging Effect on TWA's  
Stockholders

Mr. Morehouse's proposal to raise \$58.4 million in equity in the Spring of 1955 would have been a very expensive undertaking for the stockholders. In the CAB General Passenger Fare Investigation, Docket No. 8008, 32 CAB 291, 298.-309, dated November 25, 1960, the CAB found that for the Big Four airlines the proper debt-equity ratio was 50%, that the cost of debt was 4-1/2%, and that the public investor required a 16% return on common equity, producing a composite return of 10.25%. Mr. Morehouse is assuming, contrary to our view, that the common stockholders would double their holdings in TWA when they could at best expect only a nominal rate of return for the foreseeable future.

A one-for-one pre-emptive offering is a drastic measure and would only be resorted to under the most unusual



circumstances such as those existing for historical TWA in 1957. As far as we have been able to determine there is no historical precedent for such an abnormally high ratio among companies of TWA's size and financial condition without the willing participation of a majority stockholder.

Some measure of the damage that might be done to all common stockholders through the proposed equity offering can be gained by a reference to figures in Mr. Morehouse's own report.

At page 22 of his report, Mr. Morehouse states that the Aggregate Indicated Market Value (AIMV) of TWA after the subscription offering would have been \$116,800,000. On the 6,673,288 shares then to have been outstanding, this would indicate a post offering market price of \$17.50 per share. We believe the market price would have been much lower. But even accepting the figure of \$17.50, we find that the AIMV has increased only \$13,400,000 after the stockholders and/or underwriters have put into the company a new amount of cash equity capital of \$55,500,000. In other words, the TWA stockholders as a group having started with an aggregate market value for their shares of \$103,400,000 before the offering, are being asked to put up another \$58,390,000 (before underwriting fees and corporate offering expenses) to increase the AIMV not to \$161,790,000 but only

to \$116,800,000, a resultant self-inflicted loss of \$44,990,000. A stockholder who either could not or did not choose to exercise his rights, would find his holding diluted in market value by \$13.50 per share (\$31 less \$17.50).

Important indicia of competent management, especially as measured by the investing public, are earnings per share and yield per share. The overall money earned by a company is unimpressive to a stockholder if his earnings per share are diluted. No competent management desires to dilute the equity position of its stockholders unless required by the most pressing circumstances, and then only when the need for equity is clearly apparent.

In a regulated industry such as the airline industry, principles of reducing dilution and enhancing leverage within prudent limits are of fundamental importance to stockholders as well as to the regulatory authorities and to the public. The history of the financing of jet aircraft as arranged by the major airlines, discussed above, clearly reflects the desire of the managements of airlines to obtain the benefit of leverage afforded by debt whenever possible and to maintain the highest per share earnings possible consistent with good operating practices. Moreover, the CAB has recognized the importance of leverage by premising a rate of return for the Big Four airlines upon a capital structure containing 50 per cent debt.\*

\* 32 CAB 291, 307.

Since return on total investment in a regulated industry is limited on the high side, but not on the low side, the importance of leverage is magnified. The highest earnings per share will be realized by maintaining the highest level of debt the money market will accept, as long as the net interest rate is less than the return on total investment.

Quite obviously the importance of leverage is also of legitimate concern to a large majority stockholder. A competent professional management would do everything possible to maximize earnings per share, even at the expense of paying higher interest rates, approximately one half of which are paid by the government.

In our opinion a prudent and competent management would have considered both dilution and leverage in weighing Mr. Morehouse's proposal to raise equity in the Spring of 1955, and would have decided to postpone any equity financing until the need for the money could be more clearly demonstrated. In our view these considerations would have led to the same result whether the shares of the company were widely held by the public or largely held by a majority stockholder.

The fact that TWA actually did a one-for-one rights offering in 1957 does not change our view. This was not a public offering underwritten by investment bankers.

There was a definitive and immediate need for the funds\* and the issue was underwritten by Toolco which had agreed to provide TWA with a minimum of \$34 million of proceeds, exceeding Toolco's pro rata portion by approximately \$2 million. Actually, Toolco subscribed to \$35 million or 80.69% of the issue. (DHR Exhibit: Trans World 7).

(f) Alternative Assumptions  
as to Toolco

(i) If we assume that TWA had accepted Mr. Morehouse's recommendation with respect to the \$58.4 million equity offering in the Spring of 1955 and that Toolco had agreed to take up its pro rata share of the offering in order to maintain its percentage of ownership, such a financing probably could have been done. It is our opinion, however, that such an expensive, premature and unnecessary financing would have been a bad business decision. We would not have recommended such a financing to TWA management or to the stockholders of TWA in the Spring of 1955. If such a recommendation had been made, it is our opinion that it would not have been accepted by TWA management, by its majority stockholder or by its other stockholders.

(ii) If Toolco could not have been looked to for participation in the suggested equity offering, it is our

---

\* See Purpose of Issue Section, DHR Exhibit: Trans World

opinion that it could not have been accomplished. We would not have participated in such an underwriting and it is our opinion that a syndicate could not have been formed to have underwritten such an offering. We have already discussed the difficulties of accomplishing such a large financing under any circumstances, and we believe the impact on the financial community of a declination by Toolco to subscribe to its share of the offering would have doomed the proposal at the outset. In short, had Toolco declined to participate, Mr. Morehouse's suggested 1955 equity financing in our opinion, could not have been accomplished.

(iii) It is difficult to comment upon the purely hypothetical question presented by the assumption that there was no Toolco and that TWA was a widely-held company with no controlling stockholder. Such was not the case. Moreover, in view of the assistance TWA received as the result of Toolco's financial backing in the post-war years, it is difficult to assume that TWA, absent Toolco, could have been in as good a financial condition as it was in historically, in the Spring of 1955. Even indulging in the assumption that it was, it is our opinion that no prudent and competent management with due regard for the interests of its stockholders would have accepted the suggested equity financing plan, and if it had, we do not



believe that such an offering could have been underwritten.

The size of the offering, the lack of any precedent, the speculative nature of airline shares, the cost to the stockholders and the lack of any definitive need for the funds all argue persuasively against the doability of such a proposal. The management of TWA would have been asking its stockholders to invest their funds without any hope of a reasonable return thereon for an indefinite period of time (at least 5 years) not to finance a definitive jet aircraft program, but simply to redeem newly refinanced bonds and make the company totally debt free.

The stupendous nature of this proposed undertaking becomes fully apparent when it is realized that only \$47.2 million of common stock was sold to the public by all the domestic trunk airlines during the entire 1946 to 1956 period. (Exhibit C). Moreover, if the offering had not been held precisely in the Spring of 1955, the subsequent history of TWA's earnings would have made any later offering even more difficult to consummate. Earnings for the third quarter of 1955 were \$4.2 million compared to \$7.1 million for that quarter in 1954 and the fourth quarter earnings dropped to \$100,000 from \$1.3 million the preceding year. (Exhibit F).

The years 1956, 1957 and 1958 were all loss years for TWA. (DHR Exhibit: Financials-5). Commencing in June 1955 the stocks of the airline group declined counter to the general market. (DHR Exhibits: General 5 and 7). TWA shares declined from a high of 31-5/8 in June to a low of 22-3/4 in October 1955, and, of course, went much lower thereafter. (DHR Exhibit: Trans World 9). Even accepting Mr. Morehouse's fortuitous selection of late May or early June 1955 for the proposed equity financing, we do not believe it could have been done without the assistance of Toolco. The selection of a somewhat later date would have made the success of any such a proposed financing even more improbable.

### 3. The Balance of the Financing Plan

As noted earlier, Mr. Morehouse testified that his financing program depends upon the success of the proposed Spring 1955 equity financing (Tr. pp. 3981, 4313-14). Therefore, if the first step had been unsuccessful, the subsequent steps in the suggested financing plan fall of their own weight. We have expressed the firm conviction that the proposed 1955 equity financing was unsound and not doable. But even assuming that such an equity financing did take place, it is our opinion that on their merits, the further financings proposed by Mr. Morehouse could not have been accomplished by TWA.

(a) The October 1, 1955 \$150-170 Million  
Debt Financing

In assessing the likelihood of success for Mr. Morehouse's projected \$150-170 million flight equipment mortgage loan of October 1, 1955, we think it relevant to consider the following:

(i) By October 1, 1955 no jets had been ordered by any airlines;

(ii) By October 1, 1955 none of the airlines had arranged any financing (debt or equity) for the purchase of jet aircraft; (Exhibit A)\*

(iii) The maximum \$170 million mortgage commitment which Mr. Morehouse assumes TWA could have obtained substantially exceeds the long-term commitments obtained by any other airline in 1955\*\* The large commitments obtained by United, Eastern and American later in the Fall of 1955 were the largest in the history of the airline industry. Indeed, a \$150-170 million loan to TWA on October 1, 1955, would have been almost three times as large as any long-term commitment that had been made

---

\* The debt financings referred to by Morehouse on page 32 of his Report (see also Financials-13) were arranged on the following dates: Pan American May 10, 1955; Northwest June 30, 1955; Eastern October 31, 1955; American, November 1, 1955 and United December 21, 1955. However, the earlier Pan American and Northwest financings were for the purpose of acquiring the latest series of pistons ordered. (Exhibit A)

\*\* American obtained \$75 million; Eastern obtained \$90 million and United obtained \$120 million of long-term debt. Financing done by other airlines during this period was for much smaller amounts. (Exhibit A).

to that date to any airline for any purpose, and would have exceeded the commitments to the other airlines by a minimum of \$30-50 million. (Exhibit A).

(iv) Detailed projections with respect to the Boeing 707-331s and the Convair 880s could not have been prepared as of October 1, 1955. Lending institutions, such as life insurance companies did not make commitments of the size envisaged by Mr. Morehouse without making a comprehensive analysis of the planned use of the funds. Jet aircraft were an unknown and untested commodity in the Fall of 1955. Any insurance company asked to lend large sums of money for such a purchase during this period would have demanded detailed information as to the type and size of the fleet, cost, terms of payment, delivery dates, earning power, depreciation, planned usage, configuration and the like.

We are advised by counsel that we may assume, based upon the record in the case to date, that the inter-continental Boeing, the 707-320 series, was not ordered by any airline until December, 1955 and that detailed information on that aircraft such as described above was not available to the airlines until some time after October 1, 1955. We do not believe that funds could have been borrowed for the acquisition of this aircraft until detailed projections

containing information relating to cost, terms, delivery, earning power and the like could have been made available to prospective lenders. We note that such detailed projections, although hypothetical, were in fact included as a part of Mr. Morehouse's Report (Financials-8, 9 and 10) but that his projections were based upon information apparently not yet available to the industry. We also note the detailed projections which United in fact used in order to obtain its loan commitment in December 1955. (Defendants' Exhibit 197 in evidence.)

Moreover, Mr. Morehouse assumed that TWA's proposed borrowing on October 1, 1955 would have included a \$25 million projected down payment for medium/long-range airplanes not yet selected. As to the last item, it is our opinion that a commitment of this size could not have been obtained as of October 1, 1955 to buy an unspecified number of unselected airplanes which had not yet been developed or identified.

(v) Although not disclosed by Mr. Morehouse's exhibits, TWA's earnings, as compared to 1954, began to fall in the second quarter of 1955 and dropped sharply in the third and fourth quarters. (Exhibit F).

In view of the above, and even assuming, contrary to our view, that the proposed 1955 equity financing



had been accomplished, it is our opinion that TWA would not have and could not have obtained a commitment for \$150-170 million on October 1, 1955.

(b) The May 1959 \$60 Million of  
Convertible Debentures

Notwithstanding our conviction that neither the equity nor the debt financing proposed by Mr. Morehouse for the year 1955 could have been accomplished, we will assume for the purpose of the following comments on Mr. Morehouse's 1959 proposals that both of his 1955 financings had been accomplished.

The convertible debenture financing of \$60 million proposed by Mr. Morehouse for May 1959 (page 68) substantially exceeds any equity financing done by Pan American, American, Eastern or United during the 1955-1960 period. On October 21, 1958, Eastern sold \$25 million of convertible subordinated notes; on June 18, 1959 American sold \$40 million of convertible subordinated debentures; on July 29, 1959 Pan American sold \$46.97 million of convertible subordinated debentures; on November 30, 1960, United sold \$25 million of convertible subordinated debentures. Based on these facts and in light of the reconstructed earnings of TWA during the years 1956, 1957 and 1958 it seems questionable that the offering would have been doable.

We note that this proposed financing was deferred from 1956, although on page 38 of his report,

Mr. Morehouse acknowledged that a need for additional junior financing was apparent in 1956. Mr. Morehouse declined to suggest equity financing in 1956, but delayed such financing until he could take advantage of the more favorable market climate of 1959. Examination of the market price for airline stocks during the period indicates that again in May and June of 1959 the market was at its all-time high for the preceding four years and for that matter for the succeeding three and one-half years as well. (See DHR Exhibit: General 7). We find it difficult to believe that it would have been possible to have had two equity financings - one in 1955 and one in 1959 - and catch the market each time at or near its high over a thirteen-year period. One would have indeed been fortunate to have been able to do this.

(c) The May 1959 \$90-110 Million Loan  
Commitment

With respect to the private placement of \$90-110 million of 6% mortgage notes in May 1959, we doubt that an institutional investor would have been willing to enter into the commitment in light of the poor earnings and cash flow coverages and the high senior debt ratio of 60.7% shown for reconstructed TWA in Mr. Morehouse's schedule at page 70. According to the schedule, on a pro forma basis reconstructed TWA had earned an average over five years

(1954-1958) of only half of the interest that would have been payable had the total reconstructed senior debt of \$280 million been outstanding. The 12 months ended March 31, 1959 were not much better than the five year average, as only 70% of the interest had been earned. None of these figures would seem to justify an institutional lender making an additional \$90-110 million senior debt investment in reconstructed TWA.

Based upon our dealings with insurance companies in arranging financing for our clients, we know that all insurance companies, including the major lenders, are regulated in their investments by state laws, which prevent the lenders from acquiring obligations which are predominantly speculative in character.

We note that Mr. Morehouse speculated as to the quality of both his proposed October 1955 mortgage obligations and his \$60 million May 1959 convertible subordinated debentures. In Mr. Morehouse's opinion the institutional investors would have viewed the October 1955 obligations as "not quite up to Baa quality" (page 31). As to the May, 1959 convertible subordinated debenture issue, he states that it "might have been rated no higher than B".\* (page 68).

---

\* Although DHR Exhibit: General 1 defines Baa and Ba ratings, no definition of a B rating is given. Moody's defines a B rating as follows: "Bonds which are rated B generally lack characteristics of the desirable investment. Assurance of interest and principal payments or of maintenance of other terms of the contract over any long period of time may be small."

However, he gives no clue as to a possible rating for the \$90-110 million May 1959 mortgage notes. It is our opinion that the May 1959 mortgage notes would have been considered at best of B quality, and thus might well have presented to institutional lenders a question as to whether such an investment would have complied with applicable state laws.

We are aware of so-called "basket provisions" under which insurance companies technically are permitted by state statutes to make otherwise unqualified investments up to a very small percentage of admitted assets. However, in our experience insurance companies are reluctant to make loans directly under the "basket provisions", and when they do, it is only in special situations and in small dollar amounts, certainly not in the \$100 million category.

We do not attempt to pass upon the legality of the loan proposed by Mr. Morehouse, but our experience in dealing with institutional lenders leads us to the conclusion that, as a practical matter, it would have been a most difficult, if not impossible task to persuade an institutional lender to enter into the loan commitment proposed by Mr. Morehouse for May of 1959.

**D. The Feasibility of TWA Independently Financing  
the Projected Capital Requirements of  
\$544.8 Million**

The reconstructed capital requirements of TWA from October 1, 1955 through December 31, 1960, which appear in DHR Exhibit: Financials-31, were \$544.8 million. These

requirements include the cost of the 63 jet planes originally ordered by Toolco for TWA, as well as the cost of the piston acquisitions TWA historically incurred. Assuming the reconstructed funds available from operations during the period (DHR Exhibit: Financials-30) TWA would have been faced with the task of raising in excess of \$300 million of new money to carry out its hypothetical program.

It is our view that in the light of the diminishing reconstructed earnings in 1955 and the loss years of 1956, 1957 and 1958 (DHR Exhibit: Financials-29), TWA could not independently have raised \$300 million on reasonable terms.

TWA historically financed its requirements during the 1955-1960 period only with the substantial assistance of Toolco. In 1957 TWA had an equity financing totalling \$43.4 million, of which Toolco furnished over \$35 million. (DHR Exhibit: Trans World-7). TWA incurred debts at the end of December 1960 of \$165 million of senior debt consisting of \$92.8 million to insurance companies and \$72.2 million to banks, and \$100 million in the form of interim subordinated notes purchased by Toolco, to be exchanged for subordinated debentures with detachable common stock warrants (which issue was to be guaranteed by Toolco). TWA also obtained a \$50 million credit from Toolco on a subordinated basis for working capital purposes. (TWA 1960 Annual Report). The total of



these 1957 and 1960 financings (not including the \$50 million working capital credit)-was \$308.4 million, of which Toolco supplied over \$135 million.

These financings assisted TWA historically in acquiring 47 jet airplanes (15 Boeing 131s, 12 Boeing 331s and 20 Convair 880s) and various piston planes, all of which are included in the larger reconstructed acquisition program Mr. Morehouse attempts to finance. In light of the substantial contributions by Toolco which made TWA's historical acquisitions possible, we do not see how TWA could have independently financed the even greater capital requirements of the hypothetical program including 63 jet planes (15 Boeing 131s, 18 Boeing 331s and 30 Convair 880s).

In his conclusion, Mr. Morehouse states (p. 75) that DHR did not wish its report to be interpreted as meaning that the financial program recommended was the only program by which TWA might have successfully financed to meet the question posed. There are no other suggestions given, so we are left with the program suggested by Mr. Morehouse which has as its cornerstone the \$58.4 million equity financing in the Spring of 1955. We have stated that we do not believe that such a financing was possible without Toolco's participation, and assuming that there was no Toolco we do not believe that any prudent and competent management without the benefit of hindsight would have

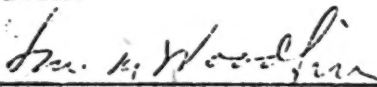
DX270, Part II, page 38  
(Report of Loeb, Rhoades & Co.)

adopted such a program. If there were another financial program available without Toolco's help, we believe Mr. Morehouse would have recommended it and not a program so subject to criticism because of hindsight opportunism as the program he did recommend.

STATE OF NEW YORK )  
                          : ss.:  
COUNTY OF NEW YORK)

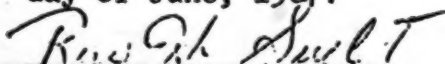
GENE M. WOODFIN, being duly sworn, deposes and says:

I am a Partner in Loeb, Rhoades & Co., and the above report was prepared under my direct supervision. I have read the report, know the contents thereof, and all statements therein contained are true as stated to the best of my knowledge, information and belief. I hereby adopt the report as my direct testimony in the proceedings before the Honorable Herbert Brownell, Special Master, entitled Trans World Airlines, Inc. v. Howard R. Hughes, et al., 61 Civil 2324, United States District Court for the Southern District of New York.

  
\_\_\_\_\_  
Gene M. Woodfin

Sworn to before me this

16<sup>th</sup> day of June, 1967.

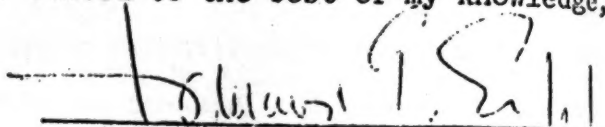


ROSE H. SUELTY  
Notary Public, State of New York

STATE OF NEW YORK )  
: ss.:  
COUNTY OF NEW YORK)

ARMAND G. ERPF, being duly sworn, deposes and says:

I am a Partner in Loeb, Rhoades & Co., and I have participated in the preparation of the above report. I have read the report, know the contents thereof, and all statements therein contained are true as stated to the best of my knowledge, information and belief.

  
Armand G. Erpf

Sworn to before me this

16<sup>th</sup> day of June, 1967.

  
Notary Public.

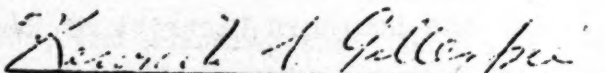
ROSE H. SCHULTZ  
Notary Public, State of New York  
No. 410291000  
Qualified in Queens County  
Commission Expires March 30, 1969

STATE OF NEW YORK )  
: ss.:  
COUNTY OF NEW YORK)

KENRICK S. GILLESPIE, being duly sworn, deposes and

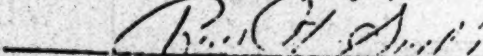
says:

I am a Partner in Loeb, Rhoades & Co., and I have participated in the preparation of the above report. I have read the report, know the contents thereof, and all statements therein contained are true as stated to the best of my knowledge, information and belief.

  
Kenrick S. Gillespie

Sworn to before me this

16<sup>th</sup> day of June, 1967.

  
Notary Public.

ROSE H. SCHULTZ  
Notary Public, State of New York  
No. 410291000  
Qualified in Queens County  
Commission Expires March 30, 1969

DOMESTIC TRUCK AIRLINE AND PAN AMERICAN FINANCINGS  
1946 - 1960\*

AX-1771

DX270, Exhibit A-1  
(Report of Loeb, Rhoades & Co.)

	<u>Airline**</u>	<u>Description</u>	<u>Amount</u>	<u>Purpose</u>	<u>Purchaser or Lender</u>	<u>Investment Banker</u>
1/46	TWA	2-1/4% Series B Sinking Fund Debentures due 1951	\$10,000,000	Purchase of Constellations	Equitable	--
1/46	AAL	3 3/4 Debentures due 1966	40,000,000	General Corporate Purposes & Purchase of Flight Equipment	Public Offering	Kidder Peabody Lehman Bros. Glore Forgan Emanuel Deetjen
1/46	AAL	3-1/2% Cumulative Convertible Preferred per 100	40,800,000	General Corporate Purposes & Purchase of Flight Equipment	Public Offering	Kidder Peabody Lehman Bros. Glore Forgan Emanuel Deetjen
1/46	NAL	150,000 shares common at \$25.50	3,825,000	New Equipment DC4s & DC6s	Public Offering	Lehman Bros.
2/46	PA	1-1/2% Credit Agreement	40,000,000	Equipment	National City and others	--
3/46	NW	Credit Agreement	10,000,000	Martin 303s	National City and others	--
1/46	NAL	2% Credit Agreement	3,000,000	Equipment	--	--
1/46	NW	271,935 shares common stock at \$18.50	5,030,797	Repay bank loans and purchase equipment	Offering to Shareholders 1 for 2	Auchincloss, Parker & Redpath; First Boston Hornblower & Weeks
1/46	EAL	1-1/2% Revolving Credit	20,000,000	14 Constellations and Corporate Purposes	Chase National and 26 Banks	--

Does not include Colonial Airlines (merged into Eastern Air Lines), Chicago & Southern (merged into Delta Air Lines) and Western Air Lines.  
Debt financings through conditional sales contracts or by leasing are not included.

American Airlines, Inc.	AAL
Brantiff Airways, Inc.	BNP
Capital Airlines	CAP
Continental Airlines	CAL
Delta Air Lines, Inc.	DAL
Eastern Air Lines	EAL
National Airlines, Inc.	NAL
Northeast Airlines	NEA
Northwest Airlines, Inc.	NW
Pan American World Airways	PA
Trans World Airlines, Inc.	TWA
United Air Lines, Inc.	UAL

DX270, Exhibit A-2  
(Report of Loeb, Rhoades & Co.)

	Airline	Description	Amount	Purpose	Purchaser or Lender	Investment Banker
6	DAL	2-1/2% Bank Credit Agreement due 1961	\$ 5,000,000	To purchase Martin 202s	Citizens & Southern and 16 Banks	--
	CAP	Notes	4,000,000	Equipment	Bank	--
7	TWA	2-3/4% Subordinated Convertible Notes due 6/2/56	10,000,000	Working Capital	Toolco (On August 24, 1948 TWA issued 1,034,423 shares of common to Toolco in exchange for the surrender and retirement of these notes and accrued interest.)	--
7	NY	2-1/2% Bank Credit	10,000,000	Flight Equipment DC6s and DC4s	New York Trust and others	--
7	UAL	Revolving Credit 1-1/2% - 2%	26,000,000	Expansion program including New Flight Equipment; New Ground facilities	National City and 34 Banks	--
7	UAL	Series A Debentures 3-1/2% due 1967	12,000,000	Expansion program including New Flight Equipment; New Ground facilities	Metropolitan & MONY	Harriman Ripley
7	UAL	4-1/2% Cum. Conv. Pfd. 94,733 shares	9,477,000	Expansion program including New Flight Equipment; New Ground facilities	Offering to Shareholders 1 for 19-1/2	Harriman Ripley
7	NEA	3% note	2,029,125	Construction of Hangar, 2 C47s, repay debt, working capital	Atlas Corp.	--
7	EW	Revolving Credit 1-1/2% - 2%	18,000,000	To repay bank debt	14 Banks	--
7	CAL	2-1/2% Credit Agreement	1,700,000	5 Consolidated Vultee Model 240	Chase National and others	--
7	EW	4.6% Cum. Conv. Pfd. (390,000 shares at \$25)	9,750,000	Expansion and General Corporate Purposes	Public Offering	Auchincloss, Parker & Redpath; First Boston; Hornblower & Weeks
7	DAL	100,000 shares common at \$22	2,200,000	Working Capital	Private Placement	Courts & Co.
8	AAL	Credit Agreement	7,500,000	To provide for unforeseen contingencies	Mellon National, National City, Security First National	--
8	NEA	\$1 Cum. Conv. Pfd. 83,333 shares at \$20	1,667,000	To repay debt owing to Atlas Corp. & Salta Holding Corp.	Offering to Shareholders 1 for 6	None



DX270, Exhibit A-3  
(Report of Loeb, Rhoades & Co.)

3/25/48	TWA	37,500 shares common at \$8	Secured Credit Agreement 3%, due 1953 (Guaranteed in part by Lockheed)	\$ 300,000	Purchase of 12 L 749s	Public Offering	Lehman Bros.
8/3/48	UAL	184,807 common at \$10.75		3,577,000	Purchase of 9 L 049s	Bankers Trust and Mellon Bank	--
8/4/48	PN	Term Loan		2,500,000	Constellation engines and propellers	Wright and Curtiss-Wright	--
1948	NEA	Notes		1,987,000	Capital expenditures	Offering to Shareholders 1 for 10	Harriman Ripley
2/18/49	TWA	404,112 common at \$10		40,000,000	To convert credit agreement to term loan	National City and others	--
3/17/49	NAL	174,000 common at \$5.50		400,000	To refund other Atlas Notes	Atlas Corp.	--
4/19/49	NAL	66,013 common at \$6.50		4,041,120	General Funds	Offering to Shareholders 1 for 5	Merrill Lynch
4/19/49	NAL	10,000 common at \$5.50		957,000	--	W. R. Grace	Lehman Bros.
5/16/49	NEA	4% Notes		429,000	--	Bessemer Securities	Lehman Bros.
8/4/49	TWA	Secured Credit Agreement, 3%, due 1955 (Guaranteed in part by Lockheed)		55,000	Settlement of Legal Fees	Loftin, Anderson, Scott, McCarthy & Preston	--
9/1/49	NW	4% Credit Agreement Secured by Equipment and Hangars		1,750,000	4 CV 240s	Reconstruction Finance Corp.	None
9/1/49	UAL	3% Credit Agreement		12,000,000	20 L 749As	Mellon and 6 other banks	--
9/20/49	PN	3% Credit Agreement		21,000,000	10 Boeing Stratocruisers and to replace 1947 Credit Agreement	Bankers Trust and others	--
11/1/49	CAP	4% Series A Debenture due 1960		3,500,000	5 DC6s	National City and other banks	--
11/1/49	CAP	4% Series B Convertible		59,000,000	To repay other bank loans and acquire American Overseas Airlines	National City and 29 other banks	--
				3,700,000	To refund existing long term debt	Offering to SH in exchange for 3-1/2% Notes	Lehman Bros.; White, Weld
				3,700,000	To refund existing long term debt	Offering to SH in exchange for 3-1/2% Notes	Lehman Bros.; White, Weld

EXHIBIT A-4

<u>Specim. Date</u>	<u>Airline</u>	<u>Description</u>	<u>Amount</u>	<u>Purpose</u>	<u>Purchaser or Lender</u>	<u>Investment Banker</u>
7/19/50	HAL	Secured Demand Loan 2-1/4% - 2-1/2%	\$ 2,000,000	To pay for 4 DC6s	2 banks	--
8/9/50	CAP	Aircraft Purchase Notes due 1953	3,332,506	5 Constellations	Lockheed Aircraft Corp.	--
9/30/50	EAL	Credit Agreement 2-1/4%- 2-1/2%	30,000,000	35 4404s, 14 11049s and to repay \$6,000,000 debt	Banks	--
10/30-1951	TWA	Secured Credit Agreements, 3-3/4%, due 1956	22,850,000	40 4404s, 10 11049As	Mellon and other banks	--
3/31/51	CAL	Secured Credit Agreement 4-1/2% due 1958	3,000,000	7 CV340s and 2 DC6As	Chase National and 17 other banks	--
1951	HAL	Bank loan	5,000,000	Aircraft purchases	Banks	--
2/1/52	UAL	Series B Debs. 3-1/2% due 1967	10,000,000	General	Metropolitan, MONY	Harriman Ripley
2/25/52	CAL	Supplemental Credit Agreement 4-1/2% due 1958	4,500,000	7 CV340s and 2 DC6s	Chase National and 17 other banks	--
2/28/52	TWA	240,774 shares at 21-1/4	5,116,448	General	Offering to Share- holders 1 for 10	None
3/5/52	CAL	89,944 shares at 8-1/2	764,524	Equipment	Public Offering	Lehman Bros.
3/19/52	UAL	223,865 sha. conv. Pfd. 4-1/2% at 100	Approx. 22,300,000	To redeem 5% Pfd.	Offering to Share- holders 1 for 11	Harriman Ripley
7/1/52	UAL	Credit Agreement 3-1/4% to 1/1/55, due 10/1/59	45,000,000	--	38 banks	--
8/12/52	DAL	100,000 sha common at \$25	2,500,000	Equipment and corporate purposes	Public Offering	Courts & Co.
8/15/52	BNP	Credit Agreement	13,000,000	Flight Equipment	--	--
8/15/52	EAL	Credit Agreement Amended to 3/31/57	40,000,000	Working capital and new aircraft	--	--
8/16/52	BNP	Conv. Debs. 4-1/2% due 1963	2,000,000	Debs. assumed through merger	--	--

DX270, Exhibit A-5  
(Report of Loeb, Rhoades & Co.)

DATE	ACCOUNT	DESCRIPTION	AMOUNT	PURPOSE	PURCHASER OF LOAN	INVESTMENT BANKER
1/52	DAL	From. Note 1/4 due 12/21/61	\$ 307,136	--	Phillips Petroleum	--
		Credit Agreement 3-1/2% to 8/1/54	20,000,000	20 CV340s, 10 DC7s	25 banks	--
1/52	NAL	Loan Agreement 3-1/2% to 6/30/59	12,000,000	8 DC68s, 8 CV340s, 4 DC7s, and retired \$5,000,000 bank loan	--	--
1/52	CAP	3-7/8% Credit Agreement Secured to 6/30/54	5,000,000	5 Constellations	Chase National Bank	--
1/52	TWA	353,822 shs. at \$16	5,661,152	General	Offering to Shareholders 1 for 7	None
1/53	NW	Credit Agreement Secured 1/4 due 12/31/59	21,800,000	6 1049Es	14 banks	--
1/53	DAL	Conv. Debs. 5-1/2% due 5/1/73	10,942,000	Purchase of Chicago & Southern Airline	--	--
1/53	PN	Credit Agreement 3-1/4% 3-3/4% due 1955-1958	59,000,000	\$34,000,000 to repay debt under the 1949 agreement	National City and other banks	--
1/53	CAL	Credit Agreement Amended 4-1/2% due 1959	1,000,000	DC68s	Chase National and 17 other banks	--
	TWA	Secured Credit Agreement, 1/4, 6 years	25,000,000	20 L 1049Gs	Mellon and other banks	--
1/54	UAL	Credit Agreement Amended to 1/1/56, amount reduced	30,000,000		Banks	--
1/54	UAL	Series C Debs. 3-3/4% due 1974	20,000,000	General	Metropolitan MONY	Harriman Ripley
1/54	CAP	Purchase Note at Bank of England rate ruling plus 1.75%; 3/1/55 became a chattel mortgage owed to Vickers-Armstrong Ltd.	67,000,000	40 to 60 Viscounts	Chase National Bank	--
1/54	IN	Credit Agreement 3-3/4%	18,000,000	4 L 1049G, 6 DC68	Bankers Trust and 14 banks	--
1/54	TWA	Secured Revolving Credit, 3%, Terminating 6/30/57	10,000,000	Working Capital	Irving and 7 banks	--
1/54	TWA	3-3/4% Equipment Mortgage Sinking Fund Bonds due 12/1/69	40,000,000	Refinance outstanding mort. debt; replace 1953 Bank Credit and purchase 20 L 1049Gs	Equitable	--

<u>Approx. Date</u>	<u>Airline</u>	<u>Description</u>	<u>Amount</u>	<u>Purpose</u>	<u>Purchaser or Lender</u>	<u>Investment Banker</u>
3/1/55	UAL	Credit Agreement Amended 3-1/4% available to 12/31/57, due 4/1/63	\$30,000,000	General	Banks	--
5/10/55	PA	Notes 3-3/4% due 1980	60,000,000	7 DC7s, 33 DC7s, Working Capital	Insurance Companies: Northwestern Mutual, Prudential, New England Mutual, Metropolitan and several others	Lehman Bros. Hornblower & Weeks
5/11/55	DET	S.F. Notes 4-1/2% due 4/1/70	15,000,000	To pay for 7 DC7s and debt retirement		F. Eberstadt
5/12/55	DET	460,644 shs. com. stock at \$12.50	Approx. 5,750,000	--	Offered to Shareholders 1 for 3	F. Eberstadt
6/30/55	WA	Credit Agreement 3-3/4% due 9/29/58	29,500,000	13 DC6s, 8 DC7s and to replace 11/1/54 Agreement	Banks	--
9/30/55	NEA	Credit Agreement 4% due 12/31/62	11,000,000	10 DC6s	Banks	--
10/31/55	EAL	Notes 3-3/4% due 12/15/75	90,000,000	\$36,000,000 to retire bank debt \$14 MM for DC7s, Super Gs and 40 Electras, \$40 MM for a future jet order	Equitable	--
11/1/55	AAL	Notes 4% due 11/1/96 (funds available until 1959)	75,000,000	20 jets	Metropolitan	Lazard Freres
11/3/55	CAL	Conv. Sub. Debs 4-3/4/70	4,125,000	To repay installment notes and general corporate purposes	Public Offering	Lehman Bros.
12/19/55	CAL	Credit Agreement	10,000,000	3 CV440s, 5 DC7s	Chase Manhattan	--
12/21/55	UAL	Credit Agreement Amended 3-1/4% due 1/1/65	30,000,000	Jets	38 banks	--
12/21/55	UAL	Series D Debs 4% due 2/1/81	120,000,000	30 DC8s	Metropolitan, MONY Prudential	Harriman Ripley (agent)
1955	NEA	Credit Agreement 4% due 3/63	11,000,000	DC6B	Chase Manhattan	--
3/15/56	DAL	Credit Agreement	30,000,000	Repay debt and 5 CV440s, 10 DC7s, 8 DC8s	25 banks	--

DX270, Exhibit A-7  
(Report of Loeb, Rhoades & Co.)

Airline	Description	Amount	Purpose	Purchaser or Lender	Investment Banker
66 CAP	Conv. Subord. Debs. 4-1/4% due 7/1/76	\$12,000,000	To refund debt and expansion	Public Offering	Lehman Bros.
66 DAL	125,000 shs common at \$37	4,625,000	Corporate purposes	Public Offering	Courts & Co.
66 BKF	1,105,545 shs common stock at \$10	11,000,000 (approximately)	To pay for 7 DC7s, 5 CV440s, 5 B707s, and 9 Electras	Offering to Shareholders 3 for 5	F. Eberstadt
66 AAL	Promissory Notes 4-1/4% due 11/1/96	60,000,000	Turbine powered aircraft for delivery in 1959 and 1960	Metropolitan and Prudential	Lazard Freres
66 BKF	Eq. Notes 4-3/4% due 7/1/76	40,000,000	To pay for 7 DC7s, 5 CV440s, 5 B707s, and 9 Electras	MONY, Equitable, Prudential, New England Mutual, Northwestern Mutual, Connecticut General, Connecticut Mutual	F. Eberstadt
66 NW	Credit Agreement 4-1/4% due 1959-63. To replace 6/30/55 agreement	38,500,000	Equipment	--	--
66 NEA	784,402 shs at 9-1/2	7,451,819	10 DC6B, and corporate purposes	353,947 to holders other than Atlas Corp. on 4-5 basis; 38,254 to Atlas Corp.; Total 392,201 to public	Carl M. Loeb, Rhoades & Co.
66 CAL	Credit Agreement 4-1/2% due 1964	10,000,000	Equipment	Chase Manhattan	--
66 PH	Promissory Notes 4-3/4% due 3/1/80	30,000,000	9 DC7s, 23 B707s - advances, 21 DC6B - advances	Institutional Investors: Metropolitan, Prudential, Northwestern Mutual, Conn. Mutual, Mutual Benefit	Lehman Bros. Hornblower & Weeks
66 NAL	Purchase Obligation	3,504,000	To purchase interchange route	--	--
66 TWA	Credit, Prime, Terminating 4/30/56	10,000,000	Reserve funds	Hughes Tool Co.	--
66 CAL	Mortgage 4-1/2% due 1976	130,000	Office building	--	--



<u>Approx. Date</u>	<u>Airline</u>	<u>Description</u>	<u>Amount</u>	<u>Purpose</u>	<u>Purchaser or Lender</u>	<u>Investment Banker</u>
4/10/57	CAL	Credit Agreement (Replaces 1955 Agreement)	\$26,500,000	15 Viscounts, 4 B707s, 5 DC78s and to refund debt	Chase Manhattan	--
5/25/57	TWA	Secured Bank Loan, 5-5-1/4%, due 12/1/60	35,000,000	Refinance debt and pur- chase L10490s and L16494s	Irving and other banks	--
5/23/57	CAL	230,000 shs at \$10	2,300,000	--	Public Offering	Lehman Bros.
6/17/57	TWA	3,337,036 shs at \$13	43,381,468	Refinance debt and pur- chase L 10490s and L 16494s	Offering to Share- holders 1 for 1	None
10/57	MEA	5-1/2% Subord. Note	2,000,000	--	Atlas Corp.	--
12/2/57	TWA	Subordinated Note, Prime	5,800,000	--	Hughes Tool Co.	--
12/31/57	TWA	Guaranteed (by Hughes Tool Co.) Note	12,000,000	General	Irving and Bank of America (Purchased by Hughes Tool Co. - 7/1/58)	--
12/20/57	UAL	Credit Agreement, Prime; due 12/31/61. Later extended to 6/30/62	130,000,000	11 B720s, 10 DC8s	First National City and 36 banks	--
12/31/57	PN	Short Term Loans	24,999,000	--	Banks	--
1957	PN	Installment Notes 4-1/2%, 19 monthly installments beginning 1/1/59	725,000	Purchase of aircraft	Banks	--
1957	CAL	Subordinated Notes 5% due 6/1/62	1,024,938	--	--	--
1957	CAL	Equipment Notes	4,400,000	Equipment	--	--
1957	MEA	Equip. Trust Certif. 5.37% - 7% due 1963-65	10,213,000	8 Viscounts	Vickers-Armstrong Ltd.	--
2/27/58	CAP	Notes	2,500,000	--	Chase Manhattan	--
5/31/58	UAL	Credit Agreement 1/4%	15,000,000	Equipment	--	--
6/29/58	CAL	Conv. Subord. Debs 5-3/4% due 6/1/73	12,500,000	To repay Vickers and flight equipment	--	Lehman Bros.

DX270, Exhibit A-9  
(Report of Loeb, Rhoades & Co.)

Airline	Description	Amount	Purpose	Purchaser or Lender	Investment Banker
1/58 EAL	Credit Agreement Prime + due 1961	\$50,000,000	40 Electras, 16 DC8s	Chase Manhattan and 17 other banks	--
1/58 EAL	Conv. Sub. Notes 5% due 12/1/78	25,000,000	40 Electras, 16 DC8s, and working capital	Prudential	--
1/58 PN	Credit Agreement; Prime +	130,000,000	To pay for 23 707s, 17 DC8s	New York Trust and 38 banks	--
7/58 DAL	Debs. 6% due 10/1/74	25,000,000	Pay for 6 DC8s, 10 CV880s, and equipment	Prudential	--
8/58 NW	4-1/4% - 4-5/8% due 1965	32,500,000	Equipment	15 banks	--
8/58 NW	6% Notes due 10/1/78	40,000,000	5 DC8s, 10 Electras	Prudential, Conn. General, Conn. Mutual, Mutual Benefit, N.E. Mutual, and others	First Boston
1/58 NAL	Credit Agreement	40,000,000	3 DC8s, 12 Electras, and repay debt	Chemical Corn Exchange Bank, First National City (50/50)	--
1/58 NW	457,873 shs 5-1/4% Conv. Pfd. at \$25	11,450,000 Approximately	Repay debt incurred for acquisition of DC7Cs and DC6Bs	Offering to Share- holders. 1 for 3	First Boston
11/58 DAL	Credit Agreement Amended	5,000,000 added	--	--	--
12/58 NEA	5-1/2% Subord. Notes	3,824,000	--	Atlas Corp.	--
12/58 AAL	Promissory Notes 5% due 11/1/96	30,000,000	Jets	Equitable and Metropolitan	Lazard Freres
12/58 AAL	Conv. Sub. Debs 5% due 1/1/85	40,000,000	Jets	Equitable and Metropolitan	Lazard Freres
12/58 PN	Conv. Sub. Debs 4-7/8% due 1979	46,971,000	Acquisition of jets and related flight and ground equipment	Offering to Share- holders - \$100 for 14	Lehman Bros., Hornblower & Weeks
1/59 CAL	Equip. Trust Certif. 6% due 6/1/62	1,545,391	--	--	--
1/59 NEA	5-1/2% Subord. Notes	7,618,000	--	Atlas Corp.	--
1/15/60 PN	Promissory Notes 6% due 8/1/60.	50,000,000	Jets and working capital	11 insurance com- panies	Lehman Bros.

DX270, Exhibit A-10  
(Report of Loeb, Rhoades & Co.)

<u>Approx. Date</u>	<u>Airline</u>	<u>Description</u>	<u>Amount</u>	<u>Purpose</u>	<u>Purchaser or Lender</u>	<u>Investment Banker</u>
9/1960	CAL	Secured Notes Series A 5-1/2% due 9/30/65	\$25,500,000	B 707s and to retire bank debt and working capital	Chase and 21 banks	--
9/1960	CAL	Secured Notes Series B 6-1/2% due 12/31/72	12,500,000	B 707s and to retire bank debt and working capital	9 Institutional lenders	--
9/1960	CAL	Subordinated Notes 6-1/2%	4,000,000	B 707s and to retire bank debt and working capital	--	--
11/30/60	UAL	Conv. Sub. Debs. 4-7/8% due 12/1/85	25,000,000	To refund debt	Public Offering	Harrison Ripley
11/30/60	UAL	Credit Agreement Amended	35,000,000	Jets	First National City and other banks	--
12/15/60	PN	Credit Agreement Supple- mentary to 1958 \$14.8 MM borrowed 12/20/60	18,500,000	Jets and working capital	New York Trust and 38 banks	--
12/29/60	NAL	Demand Loan 5-1/4%	4,500,000	--	--	--
12/30/60	AAL	5-3/4% Notes	60,000,000	--	Metropolitan	--
12/30/60	TWA	Secured 6-1/2% Sinking Fund Notes, due 12/31/72 Secured 6% Serial Notes Subordinated 6-1/2% Interim Note Subordinated Credit	92,800,000 72,000,000 100,000,000 50,000,000	(Refinance existing debt, {including interim loans; (and purchase of jet (aircraft and equipment Working Capital	Equitable and Metro- politan Irving and 7 banks Hughes Tool Co. Hughes Tool Co.	Dillon Read
1960	NW	Credit Agreement	42,500,000	Replace 1958 Agreement	--	--
1960	NAL	Short Term Loan 5-1/4%	3,000,000	--	--	--
1960	NEA	Sub. Notes 5-1/2%	3,309,000	--	Atlas Corp.	--
1960	NEA	6-1/2% Notes due 1962-1964	6,500,000	--	Hughes Tool	--
1960	NEA	Installment Notes	880,412	--	--	--

Prepared by Loeb, Rhoades &amp; Co.

Sources: Prospectuses, Annual Reports, SEC and CAB Documents, Moody's Industrial Manuals, Moody's Transportation Manuals, Commercial &amp; Financial Chronicles, Investment Dealers' Digests and Standard &amp; Poor's Corporation Records.

consisted entirely of subordinated convertible debentures. The deductibility of interest for tax purposes accounts for this situation. It is only recently that the investment markets have been receptive to subordinated debt financing. While it has recently been a popular method of financing, we should point out that any debt security whether subordinated or not, is by its nature an obligation on which default entails consequences which do not ensue from a failure to pay preferred dividends.

**b. The Market History of Airline Convertible Securities**

American Airlines 3 1/2% convertible preferred stock was sold publicly in June, 1946, at \$102 per share. The market for airline common stocks was then relatively high. The conversion price, based on the public offering price of the preferred stock rather than its \$100 par value, amounted to \$21.42 per common share. The preferred shares are convertible at any time prior to redemption. The redemption prices, and the applicable conversion prices per share of common stock have been as follows:

	<u>Redemption Price Preferred</u>	<u>Equivalent Conversion Price Per Share Common</u>
On or before June 1, 1951	\$104	\$21.04
Thereafter on or before June 1, 1956	103	21.63
After June 1, 1956	102	21.42

Source: Offering prospectus dated June 11, 1946.

Unless the common stock sells above the equivalent conversion price at the applicable redemption price, the company cannot force conversion through redemption.

The subsequent market range in price for both the preferred stock and the common stock has been as follows:

<u>Year</u>	<u>Preferred Stock</u>		<u>Common Stock</u>	
	<u>High</u>	<u>Low</u>	<u>High</u>	<u>Low</u>
1946/	102 1/2	57 1/2	17 1/4	9
1947	80	50 3/4	11 3/8	7
1948	68	47	10	6 1/8
1949	70	51	10 3/8	6 3/4
1950	82	66	14	9 5/8
1951	93	78	17 1/8	13 1/8
1952	90	73	16 3/4	12 1/4
1953	84 1/2	70 3/4	15 3/8	11 3/8
1954	109	70 1/2	22 5/8	11 1/2
1955	139 1/2	102	29 1/8	20 1/2
1956	126	105 1/2	26 1/4	22
1957*	113	89	24 1/8	16 3/4

// From June 1.

// Approximate, the shares were not listed until November, 1946.

\* Through September 10.

Source: Bank & Quotation Record



It is apparent that the preferred shares dropped precipitously in price after issuance. The market price was well below par value for about eight years. The market price of the common stock did not reach the conversion price, based on redemption, until December, 1954. Thereafter the market price of the common remained above such conversion prices, both at the highs and the lows, until January, 1957. For about eight months since that date the common shares have sold consistently below such conversion price.

None of American's 3 1/2% preferred stock had been converted prior to December 31, 1954. The amounts outstanding at various balance sheet dates on and subsequent to that date have been reported as follows:

<u>Date</u>	<u>Par Value Outstanding</u>
12-31-54	\$40,000,000
6-30-55	n.a.
12-31-55	21,956,300
6-30-56	18,300,200
12-31-56	15,651,600
6-30-57	15,191,100

n.a. - not readily available.

When United Air Lines sold issues of convertible preferred stock in 1947 and again in 1952, its common stock was priced lower in relation to potentialities than the common stock of American Airlines at the time its convertible preferred stock was first offered. Both of the convertible issues of United have since been converted into common, the conversion in each instance having been forced through a call for redemption. There is no need to go into detail concerning the market action of these issues. However, we have made calculations, based on the closing market price for United common stock as of September 4, 1957, to determine how an investor, who bought 100 shares of each preferred issue at the issue price and converted his shares into common on the redemption dates, had fared through holding his investment. After giving effect to the 4% stock dividend in June, 1957, such an investor would now own 766 shares of common stock at a cost of \$20,253. On the redemption date for the 1947 stock (March 18, 1952) he would have had a paper profit of about 20% on his investment in such stock, and on the redemption date of the 1952 stock (October 10, 1955) he would have had approximately a 15% profit on that portion of his investment. But on September 4, 1957, his total investment would show a loss of about \$1,600.



DX270, Exhibit C  
(Report of Loeb, Rhoades & Co.)

ex.	Airline	No. of Shares	Price Per Share	Type of Offering	Aggregate Price to Public	Investment Banker
5/46	Colonial (a)	91,400	\$20	Subs. 1 for 3	\$ 1,828,000	--
7/46	Chicago & Southern (b)	170,000	18	Cash	3,357,500	Kebbon, McCormick; I. M. Simon
7/46	National	150,000	25-1/2	Cash	3,825,000	Lehman Bros.
8/46	Northwest	271,935	18-1/2	Subs. 1 for 2	5,030,797	Auchincloss, Parker & Redpath, Hornblower & Weeks and First Boston
5/47	Colonial	150,000	10-1/4	Cash	1,537,500	Auchincloss, Parker & Redpath
7/47	Delta	100,000 (c)	22	Cash	2,200,000	Courts & Co.
7/48	Continental	37,500	8	Cash	300,000	Lehman Bros.
7/48	United	184,809	10-3/4	Subs. 1 for 10	1,986,697	Harriman Ripley
7/49	Trans World	404,112	10	Subs. 1 for 5	4,041,120	Merrill Lynch
7/49	National	174,000	5-1/2	Cash	957,000	Lehman Bros.
7/49	National	76,013 (e)	(e)	Cash	418,072	Lehman Bros.
7/52	Trans World	240,774	21-1/4	Subs. 1 for 10	5,116,448	None
7/52	Continental	89,944	8-1/2	Cash	764,524	Lehman Bros.
7/52	Western	165,049	11-1/2	Subs. 3 for 10	1,898,064	Blythe & Co.
7/52	Delta	100,000	25	Cash	2,500,000	Courts & Co.
7/52	Trans World	353,822	16	Subs. 1 for 7	5,661,152	None
7/55	Braniff	460,644	12-1/2	Subs. 1 for 3	5,758,050	F. Eberstadt
					\$ 47,179,924	
7/56	Delta	125,000	37	Cash	4,625,000	Courts & Co.
7/56	Braniff	1,105,545	10	Subs. 3 for 5	11,055,450	F. Eberstadt
7/56	Northeast	784,402	9-1/2	Subs. 4 for 5	7,451,819	Loeb, Rhoades
7/57	Continental	230,000	10	Cash	2,300,000	Lehman Bros.
7/57	Trans World	3,337,036	13	Subs. 1 for 1	43,381,468	None
					\$115,993,661	

Now part of Eastern  
Now part of Delta  
Sold privately

Sold privately to W. R. Grace & Co.

56,013 shares sold privately to Bessemer Securities Corp. at \$6.50 per share and 10,000 shares issued at \$5.50 per share to Loftin, Anderson, Scott, McCarthy & Preston in settlement of legal fees.

ered by Loeb, Rhoades & Co.

2: Prospectuses, Annual Reports, SEC and CAB Documents, Moody's Industrial Manuals, Moody's Transportation Manuals, Commercial & Financial Chronicles, Investment Dealers' Digests and Standard & Poor's Corporation Records.

## UNITED AIR LINES

EXHIBIT D

As shown, during the week which immediately followed the Board's announcement of its decision denying the interim fare increase, the value of the Big Four common stocks dropped an average of 8.17% while the Dow-Jones Industrial Average declined only 1.7%. In the period from August 5 to October 25, the Big Four stocks dropped 27.1% while the Dow-Jones Industrial Average sold off by 13.1%. These declines are even more significant in that they came on top of the substantial decline already experienced from market prices at year-end 1956.

	<u>United</u>	<u>American</u>	<u>Eastern</u>	<u>TWA</u>	<u>Dow-Jones Industrials</u>
12/31/56	\$42.75	\$23.38	\$49.75	\$19.00	\$499.47
8/5/57	29.00	19.25	38.75	14.00	500.78
% Change	-32.2%	-17.7%	-22.1%	-26.3%	+0.3%

In United's case, the decline in the market price of its equity has placed it at an obvious disadvantage in that its stock at October 25 was selling at a discount of more than 45% from its book value per share. Under these circumstances, United is effectively barred from equity financing unless existing stockholders have the value of their equity adversely affected to a serious degree.

It is apparent that the composite judgment of the market place strongly supports the view that there is a serious problem confronting the industry. The investor is indeed asking the question, "What is Wrong with the Airlines?".

#### United's Present and Future Financing Programs

Late in 1955 United completed a financing program designed to cover its commitments for the 30 DC-8 jet aircraft ordered late in that year, together with related ground equipment and facilities. The details of this program are covered in Exhibit U-510. As shown, the program consisted of an agreement to sell a maximum of \$120,000,000 of Series D 4% Debentures to three insurance companies and an agreement providing for the borrowing of up to \$30,000,000 from a group of 38 banks headed by The

## UNITED AIR LINES

All of this financing was privately arranged because United did not have a sufficiently high potential rating to go to a public offering. Prior to financing our program we explored the question of a rating with the rating agencies. It was made clear that we could not obtain a higher rating than "Ba", a rating unsatisfactory for public sale in the amounts required at satisfactory terms and conditions. The opportunity for public sale of debt by United is important, as Mr. McClintock will discuss in his testimony, but the stability of earnings of the past decade has not been sufficiently great to produce a rating which will permit such sale.

The 1955 financing program for United was handled entirely by arranging for issuance of debt. This was not a matter of choice, for the ability of United, as well as the industry, to sell equity has been limited. That further increase in equity is necessary and desirable is apparent, but it is equally apparent that it cannot be accomplished satisfactorily until the present period of depressed earnings is brought to an end.

Meanwhile, the ratio of debt in the capital structure of United will be higher than we would like to see it. Over the long term, a debt ratio of approximately 30% is a desirable goal. The Civil Aeronautics Board should permit the carriers earnings and a rate of return which will lessen the dependence on debt financing and the achievement of lower debt ratios.

The 1955 financing program did not provide for all of United's expansion needs in the 1956 - 1961 period. If we are to meet the demands of expanded air traffic volume and bring to the public the benefits of turbine powered aircraft in the intermediate haul market it is necessary that United acquire a fleet of jet aircraft designed to do that job, in addition to an expanded order for long-haul jet aircraft. Studies have been under way for many months relating to choice of aircraft type. Market projections indicate a need for a substantial number of such air-

## Simat, Hellicson &amp; Associates

342 Madison Avenue, New York, N. Y.

Telephone: 697-1595, Area Code 212

Comparative Financial Status  
TWA and EAL(Based on Yardsticks of DHR at  
page 9 of Part II of TWA 5(a))Summarized Balance Sheets  
December 31, 1954

	<u>TWA</u> <sup>(1)</sup>	<u>EAL</u> <sup>(2)</sup>
	----(000 omitted)----	
Net Current Assets	\$ 4,089	\$ 37,740
Property, Plant, Flight Equipment, etc. - Net	84,414	59,350
Other Assets, Deferred Items, etc.	<u>1,682</u>	<u>2,639</u>
Net Current & Fixed Assets	<u>\$90,185</u>	<u>\$ 99,729</u>
Funded Debt	<u>\$18,513</u>	<u>\$36,000</u>
Deferred Credits, Re- serves, etc.	<u>4,465</u>	<u>4,482</u>
Total Deductions	<u>\$22,978</u>	<u>\$40,482</u>
Book Net Worth	<u>\$67,207</u>	<u>\$59,247</u>

(1) TWA 5(a), Part II, Page 9.

(2) Eastern 1954 Annual Report.

DX270, Exhibit E, page 2  
(Report of Loeb, Rhoades & Co.)

	<u>TWA</u>	<u>EAL</u>	
Capital Structure - Percent			
Funded Debt	21.6%	37.8%	
Equity	78.4%	62.2%	
Total	100.0%	100.0%	
<hr/>			
			<u>% of TWA</u>
Revenue Airplane Miles Flown - 1954 <sup>(3)</sup>	89,087	88,502 <sup>(2)</sup>	99.4%
Available Seat Miles - 1954 <sup>(4)</sup>	4,768	5,287 <sup>(6)</sup>	111.0%
Overall Available Ton Miles Flown - 1954 <sup>(3)</sup>	581,131 <sup>(5)</sup>	682,493 <sup>(6)</sup>	117.0%

On the basis of Revenue Airplane Miles Flown and Available Seat Miles, respectively, TWA was approximately the same size or 11% smaller than EAL. Applying the same yardsticks as DHR on page 9 of its report, TWA compared to EAL had an excess of \$8 million to \$15 million of proprietary capital. Based upon Overall Available Ton Miles Flown, TWA had an excess of \$19 million when compared to EAL.

(2) Eastern 1954 Annual Report.

(3) Thousands.

(4) Millions.

(5) TWA 5(b), Part III, Exhibit: Comparisons - 2.

(6) CAB Handbook of Statistics, 1965 Edition.



TWA's Quarterly Net Income (Loss)  
1954-1955

	<u>\$ Million</u>	
	<u>1954</u>	<u>1955</u>
1st Qtr	(4.0)	(3.8)
2nd Qtr	5.9	4.9
3rd Qtr	7.1	4.2
4th Qtr	1.3	0.1

Prepared by Loeb, Rhoades & Co.

Source: TWA Monthly Financial Reports 1954-1955  
TWA Monthly Confidential Digests 1954-1955

"DX271A  
(S.H.E. Report (Revised) - Volume One)"

REPORT OF  
SIMAT, HELLIESEN & EICHNER, INC.  
VOLUME I

STATE OF NEW YORK )  
COUNTY OF NEW YORK )

"DX271A  
(S.H.E. Report (Revised) - Volume One)"

NATHAN S. SIMAT, being duly sworn, deposes and says:

I am President of Simat, Helliesen & Eichner, Inc., and the following report consisting of Volume I, Parts I through XI and Volume II, Parts A through G, was prepared under my direct supervision. I have read the report, know the contents thereof, and all statements therein contained are true as stated to the best of my knowledge, information and belief. I hereby adopt the report as my direct testimony in the proceedings before the Honorable Herbert Brownell, Special Master, entitled Trans World Airlines, Inc. v. Howard R. Hughes, et al., 61 Civil 2324, United States District Court for the Southern District of New York.

Nathan S. Simat  
Nathan S. Simat

Sworn to before me this  
29th day of June, 1967

Rose H. Suel  
Notary Public

ROSE H. SUELT  
Notary Public, State of New York  
No. 41-3891000  
Qualified in Queens County  
Commission Expires March 30, 1969

STATE OF NEW YORK )  
COUNTY OF NEW YORK ) ss.:

L. JOHN EICHNER, BEING DULY SWORN, DEPOSES AND SAYS:

I am a Vice President of Simat, Helliesen & Eichner, Inc., and the following report consisting of Volume I, Parts I through XI and Volume II, Parts A through G, was prepared under my direct supervision. I have read the report, know the contents thereof, and all statements therein contained are true as stated to the best of my knowledge, information and belief. I hereby adopt the report as my direct testimony in the proceedings before the Honorable Herbert Brownell, Special Master, entitled Trans World Airlines, Inc. v. Howard R. Hughes, et al., 61 Civil 2324, United States District Court for the Southern District of New York.

L. John Eichner  
L. John Eichner

Sworn to before me this  
29th day of June, 1967

Rose H. Suel  
Notary Public

ROSE H. SUELT  
Notary Public, State of New York  
No. 41-3891000  
Qualified in Queens County  
Commission Expires March 30, 1969

INDEX TO VOLUMES I AND II

VOLUME I

Qualifications	Part I
Jet Equipment Premises	Part II
Introduction and Critique	Part III
Estimates of Changes in Operating Profit From the Addition of Six B-331 Aircraft (C&C Report, Chapter II)	Part IV
Estimates of Changes in Operating Profit from the Earlier Delivery of B-131 and B-331 Aircraft (C&C Report, Chapter III)	Part V
Estimates of Changes in Operating Profit from the Earlier Delivery of Twenty CV-880 Aircraft (C&C Report, Chapter IV)	Part VI
Estimates of Changes in Operating Profit from Early Delivery of Ten Additional CV-880 Aircraft (C&C Report, Chapter V)	Part VII
Added Operating Costs of B-331 Aircraft Versus B-331B Aircraft	Part VIII
Ownership Versus Leasing: B-131 and B-331 Aircraft (C&C Report, Chapter I)	Part IX
Cost of Capital Associated With Added Investment	Part X
Comparative Profit Study	Part XI

VOLUME II

Marginal Stage Lengths (Operational Changes in Jet and Piston Services)	Part A
Displaced Piston Aircraft Service	Part B
Domestic Traffic Estimates	Part C
Domestic Revenue Yield Estimates	Part D
International Revenue Estimates	Part E
Direct Operating Expenses	Part F

## I. QUALIFICATIONS

### A. BACKGROUND OF SIMAT, HELLIESEN & EICHNER, INC.

The present organization was formed in February 1963 by Nathan S. Simat to engage in economic and transportation studies for government and private clients. The present officers are Nathan S. Simat, President, and Robert I. Helliesen and L. John Eichner, Vice Presidents. The current staff includes more than twenty full-time professional employees with qualifications and experience in the fields of statistical analysis, accounting and financial analysis, and transportation economics. Close working relationships are maintained with members of the faculties of nearby universities and with other research organizations to provide specialized skills and experience, as needed, to supplement and extend the capabilities of the full-time staff. Offices are maintained in Boston, New York, and Washington. A research office is also maintained in Calgary, Canada, by Simat, Helliesen & Associates, Ltd., an affiliated company. Computer facilities and services are maintained at the Boston office.

In the four years since its formation the firm has engaged in study projects for more than twenty government and commercial clients, including the U.S. Departments of Commerce and Defense, the Federal Aviation Agency, the Government of American Samoa, the Trust Territories of the Pacific, various local government bodies and individual air



"DX271A, page I-2  
(S.H.E. Report (Revised) - Volume One)"

carriers from every sector of the air transport industry (air taxi, local services, supplemental, domestic trunk-line, and international air carriers). A brief description of the more important projects follows.

Projects for the U.S. Government

Development of airline route simulation model for estimating the costs, revenues, and rate of return on investment of operations with up to five different types of aircraft over major route segments of the Free World and use of the model to estimate the results of operations of various types of SST and subsonic jet aircraft.

Development and applications of methods of estimating the cost of developing, producing, and operating advanced types of aircraft, including the SST and jet aircraft of greatly enlarged capacity.

Analysis and development of methods of the costing of railroad operations, in order to provide management with improved cost information for investment decision-making, pricing of services, and control of operations.

Analysis of the economic feasibility of expanding

and modernizing Washington National Airport to permit operations with small, medium, and large jet aircraft.

#### Projects for Local Government Agencies

Analyses of the existing and future needs for commercial air services.

Analyses of the present and future adequacy of airport facilities and the needs for new and additional facilities.

Analyses to estimate the revenues and costs of specific air services under consideration.

#### Projects for Air Carriers

Analyses to determine the economic feasibility of air services in new markets.

Analyses to determine the profit and loss from existing services and the addition and deletion of flights.

Analyses to determine the effects of changing the prices charged for air passenger and cargo services.

#### Projects for Equipment Manufacturers

Analysis of peaking in the passenger demand for

"DX271A, page I-4  
(S.H.E. Report (Revised) - Volume One)"

transportation services and of the effect on the timing and severity of peaking of changes in the price and speed of transportation services and of changes in the national economy.

#### REPRESENTATIVE CLIENTS

U.S. Department of Commerce  
U.S. Department of Defense  
Federal Aviation Agency  
City of Houston, Texas  
City of Spokane, Washington  
City of Calgary, Canada  
Northeast Airlines, Inc.  
United Air Lines, Inc.  
Seaboard World Airlines, Inc.  
Airlift International, Inc.  
Central Airlines, Inc.  
Standard Airways, Inc.  
Wiggins Airways, Inc.  
United Aircraft Corporation  
Sabena Belgian World Airlines  
Canadian Pacific Air Lines, Ltd.

**B. QUALIFICATIONS OF NATHAN S. SIMAT**

Nathan S. Simat, who is 47 years of age, is President of Simat, Helliesen & Eichner, Inc. and operating manager of the Boston research office. He is a resident of Brookline, Massachusetts.

He was graduated from the College of the City of New York in 1940. In the years 1940-1943 and 1946-1948 he pursued graduate studies in finance, statistics, and transportation economics at New York University, George Washington University and American University.

From 1941 through 1956, with the exception of military service and a short period of employment by the Interstate Commerce Commission, he was employed by the Civil Aeronautics Board as a transportation economist. His positions at the Civil Aeronautics Board included Head Economist of the Analysis Division of the Bureau of Economic Regulation and Chief Economist and later Chief of the Certificates Section of the Routes Division of the Bureau of Air Operations.

As Head Economist of the Analysis Division, he prepared numerous operating and financial analyses for the use of the Board and its staff, dealing with traffic, revenue, and costs of air transport operations by certificated U.S. airlines. He prepared analyses of the economic feasibility of equipment purchase programs for which appli-

"DX271A, page I-6  
(S.H.E. Report (Revised) - Volume One)"

cations were made to the Reconstruction Finance Corporation for financing and for which the certification of the Civil Aeronautics Board was required as to the feasibility of the programs. He also prepared analyses and appeared as a staff witness in proceedings before the Civil Aeronautics Board involving the charges for commercial services of U.S. air carriers and presented evidence concerning the reasonableness of commercial rates under consideration. In both commercial rate and mail rate proceedings before the Board, he appeared as the staff expert on matters of rate of return. He authored, in connection with the latter role, the publications entitled "Comparative Costs of Air Carrier Capital," published by the Civil Aeronautics Board in 1947 and 1948. In addition, he undertook special studies at the request of the Board to review the adequacy of the liability rules of air carriers and their insurance coverage.

As Chief Economist and, subsequently, Chief of the Certificates Section of the Routes Division of the Board, he prepared and supervised the preparation of many studies dealing with the economic consequences of adding and deleting air services. These studies were prepared for and at the request of the Board and, in many instances, were presented in formal proceedings before the Board concerned with new airline operating authority and the adequacy



and necessity of existing operating authority. During the period from 1950 through 1956, Mr. Simat appeared as a witness in over 50 economic proceedings. He also was the representative of the Civil Aeronautics Board on the joint government-industry committee to plan the role of commercial air transportation operations in time of national emergencies and to establish the Civil Reserve Air Fleet.

In November 1956, Mr. Simat joined the staff of the Aeronautical Research Foundation, a non-profit organization governed jointly by members of the faculties of Harvard University and the Massachusetts Institute of Technology. As Project Director for the Foundation, he supervised and participated in the studies of the Foundation dealing with various transportation problems. The studies included:

A study for Mr. Edward P. Curtis, Special Assistant to the President for Aviation Facilities Planning, to project the volume of aviation activities in the U.S. through 1975 and the national requirements for aviation facilities.

A study for the U.S. Air Force to establish procedures for the systematic acquisition and retirement of military support aircraft (transports, training, and special purpose air vehicles)

"DX271A, page I-8  
(S.H.E. Report (Revised) - Volume One)"

based on economic considerations including realizable proceeds from the disposition of such aircraft taking into account the impact of the disposition program itself on the market value of used aircraft.

A study for the Association of American Railroads to estimate the avoidable costs of passenger train services, using statistical costing procedures.

A study for the New England Conference of State Aviation Officials of the need for local air services in the New England area.

A study for the Harvard Business School analyzing and projecting the financing requirements of major U.S. airlines in the period from 1957 through 1962.

As consultant to E. R. Quesada, the President's Special Assistant for Aviation, he participated in the report on "The Status and Economic Significance of the Airline Equipment Investment Program" (known as the "Cherington Report").

In 1958, Mr. Simat and other members of the Foundation staff purchased the assets of the Foundation and established United Research Incorporated. He became

Vice President and head of the Management Sciences Division of the newly formed company. In this role, he supervised and participated in the following studies, among others:

A study for Sabena Belgian World Airlines dealing with the choice and economic feasibility of a second terminal in the U.S.

A study for the Federal Aviation Agency establishing methodology for determining the economic value of improvements in the air traffic control system and aviation facilities, and the application of this methodology to estimating the economic value of an all-weather landing system.

Studies for North American Aviation to estimate the commercial market for supersonic aircraft and small subsonic jets.

A study for the U.S. Air Force on theatre logistic support, with special attention to dispersed site operations.

A study for the Association of Local Transport Airlines and the Air Transport Association of America to develop a formula basis for subsidizing

"DX271A, page I-10  
(S.H.E. Report (Revised) - Volume One)"

the operations of local transport airlines.

A study for the Federal Aviation Agency to develop a mathematical model for simulating the operation of the air traffic control system, with special focus on the estimation of disruptions to flight operations from limitations of system capacity.

A forecast of the civil demand for aviation gasoline and jet fuel for the Standard Oil Co. of New Jersey.

A study for the Federal Aviation Agency of the benefits and costs of a program to improve the air traffic control system.

A study for the U.S. Department of Commerce on federal regulation of the air transport industry.

A report on the equipment and financing program of Allegheny Airlines.

A study for Lockheed Aircraft International on the market for general aviation aircraft.

A study for British West Indies Airways on the economic feasibility of jet services.

A study for the Canadian Pacific Railroad to



develop a system of capital budgeting on a company-wide basis for the uniform consideration of alternative investment possibilities.

A study for the American Express Company on the extension of credit facilities to airline passengers.

A study for Canadair Ltd. on the economic and financial outlook for Seaboard World Airlines.

A study for the Federal Aviation Agency on the feasibility of a commercial supersonic transport program.

A study for American Airlines to determine the effectiveness of and procedures for identifying frequent air travelers.

A study for the Civil Aeronautics Board of the economic feasibility of U.S. air routes and services across the Antarctic.

In addition, Mr. Simat participated in a number of economic proceedings before the Civil Aeronautics Board on behalf of various communities and air carriers, including Bonanza Airlines, the City of Toledo, the City of Houston,



Allegheny Airlines, Grand Rapids, Portland (Oregon), Seaboard World Airlines, Eagle Airways, Riddle Airlines, Northeast Airlines, and the City of Spokane. He also directed several studies of the air cargo market for Pan American World Airways, Canadair Ltd., and North American Aviation.

In 1961 Mr. Simat resigned from United Research Inc. to become President of Systems Analysis and Research Corporation, a position he held until 1963. Systems Analysis and Research Corporation was a company formed by Mr. Simat and others to engage in transportation research. While with Systems Analysis he supervised and participated in the following major studies, among others:

- A study of the need and procedures for subsidizing commercial air services in the Commonwealth of Puerto Rico.

- A study for Aero Commander of the market for so-called "third-level" air services.

- A study for Northwest Airlines of its required rate of return in domestic operations.

- A study for Canadair Ltd. on methods for estimating the indirect costs of air carrier operations.

- A review of the scheduling and management practices of Canadian Pacific Airlines and Quebecair, Inc.

A review of U.S. international civil aviation policies for the Bureau of the Budget and other U.S. agencies.

Various studies of the benefits or possible mergers among local service carriers.

Studies for the U.S. Department of Commerce on the demand for intercity passenger transportation and the economic feasibility of greatly expanded air services in the Washington-Boston megalopolitan corridor.

During this period Mr. Simat appeared as an expert witness for the State of Hawaii on the matter of rate of return in a proceeding before the Maritime Commission. He also appeared in various Civil Aeronautics Board proceedings on behalf of airlines and communities, including Northeast Airlines, Allegheny Airlines, Seaboard World Airlines, the Commonwealth of Puerto Rico, and the City of Houston.

In 1963 Mr. Simat founded the organization presently known as Simat, Helliesen & Eichner, Inc. In his capacity as President, he has supervised and participated in the following studies, among others:

A review of the air service requirement of the City of Calgary, Canada.

A study of passenger service pricing policies for Canadian Pacific Airlines.

The development of an airline route simulation model for estimating the costs, revenues, and

rate of return on investment for operations with up to five different types of aircraft over major route segments of the free World and use of the model to estimate the results of operations of various types of SST and subsonic jet aircraft for the U.S. Department of Commerce.

Development and applications of methods of estimating the costs of developing, producing, and operating advanced types of aircraft, including the SST and jet aircraft of greatly enlarged capacity, for the U.S. Department of Defense.

A study to analyze the economic feasibility of expanding and modernizing Washington National Airport to permit operations with small, medium, and large jets for the Federal Aviation Agency.

In addition to the foregoing, and various appearances before the Civil Aeronautics Board, Mr. Simat has engaged in management and economic consulting to Northeast Airlines and Sabena Belgian World Airlines and has advised the Governor of American Samoa and the Trust Territories of the Pacific on aviation matters.

#### C. QUALIFICATIONS OF ROBERT I. HELLIESEN

Robert I. Helliesen, who is 48 years of age, is a Vice President of Simat, Helliesen & Eichner, Inc., and operating manager of the New York office. He is a

resident of Haworth, New Jersey.

In 1941 Mr. Helliesen was graduated from Colgate University where he majored in economics. In 1947 he received a masters degree in transportation economics from the New York University Graduate School of Business Administration.

From 1943 to 1956, with the exception of a two-year period of employment by The Port of New York Authority, he was employed by American Airlines, Inc. in various economics and marketing capacities. His last position prior to leaving was that of Director of Schedule Planning and Business Research. In this capacity he reported to American's Senior Vice President of Finance and Planning and was responsible for the economic and marketing aspects of American's planning for schedules, equipment, facilities, prices, and routes, and for direction of the corporation's forecasting and market research. From an equipment standpoint, Mr. Helliesen directed and participated in economic and marketing studies resulting in the acquisition by American of piston aircraft, the turboprop Electra, and the Boeing 707 jet aircraft. He also participated in efforts to acquire piston aircraft from other airlines.

From 1956 to 1958 Mr. Helliesen was with Aviation Advisory Services, a consulting organization, as a Senior Associate. In this capacity he participated in economic, marketing and financial studies for local service, domestic



trunk and international airlines, both foreign flag and Pan American. He did economic research and studies for the Air Transport Association of America in connection with the CAB's General Passenger Fare Investigation.

One study for General Dynamics entailed a market analysis relative to the advisability of acceptance by the Convair Division of General Dynamics of a large number of DC-7 aircraft as trade-ins on Convair jet aircraft.

In the latter part of 1958, Mr. Helliesen formed the Aircraft Exchange to provide the free world air transport industry with a regular market report of bids and offers for the purchase, sale and lease of used transport aircraft. A tri-lingual market report was issued on a regular basis. Regular members included most of the free world's manufacturers of transport aircraft, and most of the world's major airlines. Other members subscribed to the market report largely for information as to the status of the used aircraft market. These included many government organizations, major banks, insurance companies and miscellaneous aviation organizations. During his operation of the Aircraft Exchange, Mr. Helliesen devoted much of his time to the appraisal of present and future values of used piston aircraft and to efforts to obtain financing for aircraft transactions. Early in 1962 Mr. Helliesen sold his interest in the Aircraft Exchange,



which still exists and continues to publish its market reports.

After participating in a study for the Civil Aeronautics Board on the "Cost of Air Cargo", in July 1962 he became Senior Director of Market Development for Trans World Airlines, Inc. In 1964 Mr. Helliesen returned to American Airlines as Director of Market Development.

In 1965 Mr. Helliesen joined the firm now known as Simat, Helliesen & Eichner, Inc. In this capacity he has supervised and participated in a number of studies for government and other organizations including the following:

Analysis of peaking in the passenger demand for intercity transportation services by time of day, day of week, and season or year, and the manner and degree to which this peaking can be alleviated.

Analysis of the economic feasibility of expanding and modernizing Washington National Airport to permit jet operations.

Development and sponsoring of Northeast Airline's economic case in connection with its application to provide nonstop service between major cities in the Northeast portion of the United States and points in the Bahamas.

Development and sponsoring of Airlift International's economic case in connection with an application to provide all-cargo service between points in the United States and points in the Pacific.

D. QUALIFICATIONS OF L. JOHN EICHNER

L. John Eichner, who is 46 years of age, is a Vice President of Simat, Helliesen & Eichner, Inc. He is a resident of Greens Farms, Connecticut.

In 1942 Mr. Eichner was graduated from the Johns Hopkins University with a degree in economics.

From 1942 to 1945 he served in the U.S. Air Force as Squadron Executive Officer, attaining the rank of Major. At present, he is a Lieutenant Colonel in the U.S. Air Force Reserve with a primary specialty in administration and a secondary specialty in transportation.

In late 1945 he joined Capital Airlines as a District Cargo Manager at the beginning of its air cargo program development. He was active in the developing, marketing, and servicing of air freight during the years immediately following World War II.

He next became Assistant General Cargo Sales Manager for Capital, in which capacity he was responsible for the air mail, air express, freighter scheduling, cargo sales, service programs and the air freight programs of the airline. During this period he also served as Chairman of the Air Transport Association's Air Mail Committee and as the air postal transport expert for the Senate Postal Advisory Council. He was active in the joint program of the airlines and the U.S. Post Office Department in the development of the first experimental programs to carry regular first class mail by air on the domestic trunks and local service airlines.

In 1953 Mr. Eichner left Capital and became Vice President, Traffic & Sales, for Trans-Texas Airways, a position which he held until he left Trans-Texas in 1961. He was responsible for all marketing activities, including both passenger and cargo sales and services, for all scheduling or flight equipment, for tariffs and pricing, and for all community and public relations activities of the airline. He was active in the development of new routes for the airline and appeared in numerous CAB hearings as a witness testifying as to passenger traffic forecasts, airline schedules, comparative profitability or existing and alternate airline routes, as well as appearing in CAB and ICC hearings involving matters such as military fare policies.

"DX271A, page I-20  
(S.H.E. Report (Revised) - Volume One)"

During this period he served on the Board of Directors of Air Cargo, Inc., an airline industry corporation, as the representative of 13 local service airlines. He also represented the local service industry in the negotiation of new Air Express contracts for the entire domestic airline industry. He was also chairman of the Air Express Committee, an organization established jointly by the air transport industry and the Railway Express Agency to administer Air Express contracts. For eight years he was a member of the Air Transport Association's Air Traffic Conference, which is responsible for the inter-airline arrangements for all passenger and cargo service in the United States, including Alaska and Hawaii.

From 1961 until 1966 Mr. Eichner was Assistant Vice President of Corporate Planning for American Airlines, Inc. In this position he developed and presented American Airlines' initial five-year plan. This was the first known program in the airline industry to integrate the planning of scheduling, passenger and cargo marketing, finance, economic regulation, personnel, maintenance, flight operations, engineering, ground facilities, and economic research. This plan was used by American Airlines in determining existing and future aircraft needs by types of aircraft.

New methods of measuring, allocating, and forecasting direct and indirect costs were developed by a research team under Mr. Eichner's direction, and new techniques for projecting operating results with various aircraft types were developed. Studies were prepared for American's management covering a wide range of areas, including market research, new routes, possible airline mergers, pricing policies, airline scheduling strategies, and projections of competing airline schedules and equipment purchases.

He developed new methods of forecasting capacity and relating it to demand and devised new profitability reports by flight, by segment, and for individual aircraft on a weekly basis, taking advantage of new computer technology.

He prepared special studies and forecasts of revenues, expenses and ground facilities for future equipment types, such as B-747's, "stretched" DC-8's, "stretched" B-727's, B-737's, DC-10's, CL-1011's and various SST's. Periodic reports were also prepared on helicopter and V/STOL development and prospective uses.

Since Mr. Eichner joined Simat, Helliesen & Eichner in late 1966, he has been responsible for the preparation of airline studies and exhibits in several cases now being considered by the Civil Aeronautics Board.



## II. JET EQUIPMENT PREMISES

Donovan Leisure Newton & Irvine (DLNI) has submitted to us for our review TWA Exhibit 4C, entitled "Report on Financial Results from Operations for Trans World Airlines, Inc., 1959-1963," prepared by Coverdale and Colpitts (C&C) and testified to by Mr. Wemple of that firm, and has asked us to give our estimates of the changes in TWA's operating revenues and expenses which would have occurred in the years 1959-1963 if TWA had had the additional number and types of jet aircraft available for commercial service assumed by Mr. Wemple. DLNI has also asked us to estimate the added expense which would have been incurred by TWA after 1963 in operating five B-331 aircraft instead of the five B-331B aircraft which it did operate and still operates under lease, computing such added expense for the remaining term of the B-331B leases. DLNI has further asked us to give our opinion as to the costs of capital which would have been incurred by TWA if it had owned, instead of leased, certain B-331 and B-331B aircraft, in 1959 and 1960, and to compare such capital costs with the actual costs of leasing.

With reference to the first request, DLNI has specifically instructed us to assume, as Mr. Wemple did, that TWA received the following jet aircraft in

addition to, or at an earlier date than, the jet aircraft which it in fact received in 1959-1961:

- (a) Six additional B-331's on the dates shown in C&C Report,<sup>1/</sup> page 10.
- (b) Fifteen B-131's and eighteen B-331's on the earlier dates shown in C&C Report, page 40.
- (c) Twenty CV-880's on the earlier dates shown in C&C Report, page 52.
- (d) Ten additional CV-880's on the dates shown in C&C Report, page 65.

DLNI has also instructed us to assume, as Mr. Wemple did, that TWA would not have acquired the five B-331B's leased in 1962 and 1963 or the six CV-880's purchased in 1963 if it had acquired six additional B-331's and ten additional CV-880's.

DLNI has further instructed us to assume, as Mr. Wemple did, that TWA, even though it acquired six additional B-331's and ten additional CV-880's, would nevertheless have acquired the four B-720B's leased during 1961 and 1962 and purchased the eighteen B-131B's received in 1962.

The foregoing assumptions, which set forth a hypothetical jet fleet operated by TWA in 1959-1963, constitute

---

<sup>1/</sup> References hereinafter to "C&C Report" are to TWA 4C-1 unless otherwise noted.

"DX271A, page II-3  
(S.H.E. Report (Revised) - Volume One)"

the basic equipment premises for our Report. DLNI has not given us any assumptions as to the piston fleet operated by TWA during this period but has instructed us to make such adjustments in TWA's actual piston operations as, in our opinion, would have accompanied the hypothesized jet operations.

In view of the exigencies of time and in order to simplify our Report, DLNI has requested us to follow certain initial procedures used by Mr. Wemple, even though they may be arbitrary or erroneous in our opinion. In compliance with this request, after consultation with DLNI, we have accepted for purposes of this Report Mr. Wemple's tabulations, as amended during cross-examination, of actual availability of jet aircraft for commercial service (TWA Ex. 4C-4, Exhibit B) and of revised availability of jet aircraft for commercial service on the basis of receipt of a jet fleet as assumed above (TWA Ex. 4C-4, Exhibit C), although we do not agree in every instance with Mr. Wemple's computation.<sup>1/</sup>

---

<sup>1/</sup> For example, in calculating the actual availability of aircraft (as reflected in TWA Ex. 4C-4, Ex. B), TWA excluded certain aircraft which had been allocated to "Central Training School" (See DX-222). In computing the constructive aircraft availability (TWA Ex. 4C-4, Ex. C), Mr. Wemple made no allowance for a similar exclusion of aircraft used for training. This results in a systematic overstatement of additional aircraft availability. We also do not agree with the start-of-service dates estimated for earlier delivery of B-131's and B-331's as shown in C&C Report, page 41, or with Mr. Wemple's computation of time to be excluded because of strikes.

DLNI has instructed us to use, for purposes of our Report, Mr. Wemple's allocations or additional availability of B-331's between TWA's Domestic and International Divisions, as set forth in the tables in the C&C Report, page 13, for the assumed six additional B-331's and in the table in the C&C Report, page 42, for the assumed earlier delivery of eighteen B-331's, again as amended during cross-examination. DLNI has further instructed us to assume, as Mr. Wemple did, that all additional available B-131 and CV-880 aircraft would be allocated exclusively to TWA domestic commercial services and none to training and other uses.

The foregoing assumptions and allocations provide the premises used in our Report for the assumed additional availability of jet aircraft in TWA's Domestic and International Divisions, as set forth below.



"DX271A, page II-5  
(S.H.E. Report (Revised) - Volume One)"

Table II-A

Additional Aircraft Available for Commercial Service									
Year	C&C Report, 1/ Chapter II			C&C Report, 2/ Chapter III				C&C Report, 3/ Chapter IV	C&C Report, 4/ Chapter V
	B-331			B-131	B-331			CV-880	CV-880
	Dom.	Int'l	Sys.	Dom.	Dom.	Int'l	Sys.	Dom.	Dom.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1959	-	0.2	0.2	1.2	0.6	0.9	1.5	-	--
1960	1.4	3.6	5.0	-	0.7	0.6	1.3	10.3	5.1
1961	2.2	3.7	5.9	-	-	-	-	5.3	9.9
1962	1.0	4.8	5.8	-	-	-	-	-	10.0
1963	0.5	0.9	1.4	-	-	-	-	-	7.9

1/ p. 13.

2/ pp. 41-42, as amended by TWA Ex. 43(a).

3/ p. 53. For 1961, the actual number of CV-880's available was amended by Mr. Wemple from 14.6 aircraft to 14.5 aircraft (TWA Ex. 4C-4-1). This, when subtracted from 19.8 aircraft assumed available in Chapter IV, produces an additional availability of 5.3 aircraft.

4/ p. 66.

DLNI has instructed us to follow Mr. Wemple's procedure for estimating the additional jet aircraft miles which would have been operated by TWA if it had had the additional jet availability set forth in Table II-A. Mr. Wemple's estimates were obtained by applying the experienced annual utilization for each type of jet, in a particular year and division, to the assumed additional availability of that type of jet in the same year and division. Application of this procedure to the assumed additional jet availability shown in Table II-A gives



the assumed additional jet plane miles set forth in Table II-B (Domestic Division) and Table II-C (International Division).<sup>1/</sup>

Table II-B

	TWA Domestic Division					
Aircraft Type	Additional Jet Plane Miles (millions)					C&C Report
	1959	1960	1961	1962	1963	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
B-331	-	2.0	3.3	1.4	0.7	Chapt. II, p. 28
B-331	0.8	1.0	-	-	-	Chapt. III, pp. 43-44
B-331	1.6 <sup>1/</sup>	-	-	-	-	Chapt. III, p. 43
CV-880	-	11.7 <sup>2/</sup>	6.0 <sup>3/</sup>	-	-	Chapt. IV, p. 54
CV-880	-	5.8	11.3 <sup>4/</sup>	11.6	9.4	Chapt. V, p. 67

<sup>1/</sup> As amended by TWA Ex. 43 (a).

<sup>2/</sup> As amended by TWA Ex. 42 (a).

<sup>3/</sup> Corrected: 5.3 additional CV-880 aircraft (see Table II-A)  
times  $\frac{16.5}{14.5} = 6.0$  million additional plane miles

<sup>4/</sup> As amended by TWA Ex. 42(a).

Table II-C

	TWA International Division					
Aircraft Type	Additional Jet Plane Miles (millions)					C&C Report
	1959	1960	1961	1962	1963	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
B-331	0.1	6.3	6.6	8.4	1.5	Chapt. II. p. 15
B-331	1.6	1.1	-	-	-	Chapt. III. p. 46

<sup>1/</sup> We do not agree, in every instance, with the way in which Mr. Wemple has applied his procedure. For example, in

[Continued on p. 7]

Tables II-B and II-C provide the additional jet aircraft miles on which the remainder of our Report is premised. We do not, however, regard them as necessarily setting forth a realistic estimate of the additional jet operations that would have been undertaken by TWA with the assumed fleet. In our opinion, as explained in the following Part III of our Report, the only reliable way to estimate the probable allocation and utilization of assumed additional equipment is through the assignment of such equipment to specific services, based upon a detailed study of existing services.

1/ [Cont'd from p. 6]

computing the additional aircraft miles resulting in 1963 from the ownership of 6 additional B-331's, Mr. Wemple used a "plane miles per aircraft" ratio based upon a combination of B-331 and B-331B experience. Since the B-331B had a higher "plane miles per aircraft" ratio than the B-331, the inclusion of B-331B aircraft results in an overstatement of aircraft miles as follows: Mr. Wemple's estimate of 1963 added international airplane miles was 1.5 million (0.9 aircraft times 1.72 million average plane miles per B-331/331B aircraft). When the aircraft types are separated, the following results:

Equipment	Average Airplane Miles per Aircraft (Million) (Calculated from Ex. C&C-4(39) and TWA 4C-4, Ex.B)	Change In Miles (Million)
(1)	(2)	(3)
5.2 B-331's added	1.695	+8.8
4.3 B-331B's deleted	1.758	-7.6
		1.2 Net Add'l. Aircraft Miles

In addition to the procedures noted above, we have from time to time used, for the purposes of our Report, certain other assumptions of Mr. Wemple which we do not necessarily endorse. Such assumptions are noted where used.

### III INTRODUCTION AND CRITIQUE

Estimation of the changes in TWA's operating revenues and expenses on the basis of the jet equipment premises in Part II requires a consideration both of the added revenues and costs that would have accompanied additional jet operations and of the decreased revenues and costs that would have resulted from eliminated piston operations. Mr. Wemple has estimated that TWA would have experienced an increase in operating profits after jet depreciation adjustments for the years 1959 through 1963 in the amount of \$64 million. He did not disclose what portion of this amount was attributable to increased jet operations and what portion was attributable to decreased piston operations. Our analysis of the C&C Report shows that this \$64 million breaks down as follows:

	(millions)
Operating Profit for Added and Earlier Jets, Before Depreciation	\$ 87.8
Less: Jet Depreciation	<u>-46.9</u> 40.9
Plus: Operating Loss Eliminated by Decreased Piston Operations <sup>1/</sup>	<u>+10.4</u> 51.3
Plus: Operating Profit from Ownership of Boeing Jets versus Leasing	<u>+12.7</u> \$ <u>64.0</u>

---

<sup>1/</sup> The C&C Report does not eliminate any piston aircraft depreciation resulting from decreased piston operations. However, the Price Waterhouse Report, TWA Exhibit 7B, does estimate a reduction in piston aircraft depreciation expense.



In our opinion, based upon our estimating procedures described hereinafter, Mr. Wemple's estimates are wholly unreasonable and result in substantial error both as to the benefits attributed to added jet operations and those attributed to decreased piston operations.

#### Focus of Our Report

It is our opinion that realistic estimation of the changes in net operating profit that would result from substantial additions to available jet capacity requires an articulated operating plan in which specific consideration is given to how the added jet capacity would be integrated with existing operations, to what types of services would be added, to what existing services would be eliminated in their entirety, and to what shifts in aircraft usage would occur as added jet aircraft displace other available aircraft from their existing usage to displace, in turn, other aircraft in a chain reaction.

The scheduling and integration of new aircraft capacity is one of the most complex functions performed in the operation of an airline. It cannot be dealt with in generalities. In our view, an extensive bank of background information is needed to make appropriately informed judgments concerning the most probable and suitable use of additional aircraft on a route system as large and heterogeneous as that of TWA and the resulting effect on net operating profit.



"DX271A, page III-3  
(S.H.E. Report (Revised) - Volume One)"

It is necessary, for instance, to have information on past traffic behavior from which it can be determined whether and to what extent the volume of traffic would be affected by changes in the quantity and quality of air services. It is necessary to have information on historical flight performances as a guide to the estimation of the performance of new and changed air services. It is necessary to have information on cost behavior in order to arrive at reliable estimates of changes in operating expenses. And, it is necessary to have sufficient information on the structure of fares and charges and the actual revenues yielded by the established tariffs in order to satisfactorily estimate the revenue changes associated with changes in traffic.

These data were not available to us. As a result, we have not attempted the development of the comprehensive and detailed operating plan which we believe is needed for the most accurate and reliable estimation of revenues and expenses.

Instead, we have limited the focus of this statement to certain of the more significant errors of fact and judgment in the development of Mr. Wemple's estimates and to the overstatements and understatements in the estimates which flow from these errors. Even on the basis of this limited focus, we are convinced that it was not possible for TWA to have used additional jet aircraft profitably and to have realized the alleged benefits from the assumed reductions

of piston aircraft operations and fleet. We believe that this conclusion would only be reinforced by analysis of the detailed data that we lack.

### Fundamental Errors in Mr. Wemple's Methodology

Mr. Wemple's estimates of the net changes in operating revenues and expenses rest primarily on a structure of arbitrary assumptions and generalizations that have no factual support and do not afford an accurate foundation for estimation.

1. Equipment usage. It is a fundamental assumption of Mr. Wemple's estimates that an added jet aircraft of a particular type would be used exactly as the average or all aircraft of the same or similar types. There is no factual support for this assumption. The fact is that added aircraft are not used as productively or as economically as available aircraft of the same or similar types. By the same token, piston services displaced by the spread of jet operations were not average piston aircraft services, but were services affording better-than-average use of piston aircraft with respect to productivity and operating economics.

2. Load factors. It is a fundamental assumption of Mr. Wemple in estimating domestic operations that added jet aircraft and displaced piston aircraft would be operated at the same average load factors (percent of available space which is occupied) as all flights operated with aircraft of the same or similar types. This assumption, too, has no

support. Experience shows that added jet operations would be operated at load factors well below the average. Displaced piston aircraft operations would be drawn from the most effective of the piston aircraft services, rather than services of average effectiveness.

3. Passenger mile yields. Mr. Wemple's domestic passenger revenue estimation assumes that passenger traffic added by added jet services would yield revenues per passenger mile equal to the average experienced yield per passenger mile for the year in which added. Here again is an unsupported assumption. Actually, the yields from added jet passenger traffic would be below average revenue yields per passenger mile from TWA's domestic passengers. Similarly, the revenue yields applicable to traffic moving on displaced piston aircraft services would not necessarily be at the average revenue yield for TWA's Domestic Division.

4. Costs. Mr. Wemple's estimates of cost changes are predicated on faulty assumptions as to cost behavior. For example, he assumed that aircraft operating costs would be increased or decreased proportionately with changes in the volume of aircraft miles operated with each type of aircraft. This does not accord with generally held concepts of aircraft operating cost behavior, unless it is further assumed that the average distance between aircraft stops is the same for added and displaced flights as it is for the average flight, an assumption which is contrary to TWA's experience. In other

cost categories, such as aircraft and traffic servicing, inappropriate factors are used by him for estimating cost changes, resulting in erroneous estimates of added and eliminated expenses.

#### Mr. Wemple's Failure to Test His Assumptions

Mr. Wemple's failure to test adequately his generalizations and assumptions is, in our opinion, a serious weakness. There was available to him in publicly reported information for the airline industry, as well as in information for TWA's own operations which is even more comprehensive than the data available for other airlines, a factual basis for testing whether his major generalizations and assumptions are supported by the actual experience of TWA and the airline industry. Little or no use was made of the facts available.

The Form 41 Reports of U.S. airlines to the CAB are a prime source of financial, operating, and physical data concerning airline resources and their uses. From these data it is possible to determine whether airlines were using jet and piston aircraft equipment in the same manner and whether the usage patterns changed as jet services were added from one time period to another. It is also possible, by applying available analytical methods, to identify the factors with which changes in the uses of jet and piston aircraft are associated. From comparisons of the changes in each airline's use of aircraft from one period to another,



it is possible to determine whether the number and proportion of aircraft of each type added and eliminated have a bearing on the average usage.

There were available to Mr. Wemple from TWA's source records, not publicly reported, sufficient data to make comparisons and analyses for TWA with respect to the uses of added and deleted aircraft. From aircraft routing and schedule information, it is possible to ascertain the extent of differences among individual aircraft of each type in the miles or use achieved daily and in the average stage lengths operated because the limited opportunities for use of aircraft preclude equal productivity. It is further possible to ascertain from these internal records, by examining the differences from one period to another, the extent to which the number and proportions of aircraft available of each type affected usage. Specifically, a short run increase in the number and proportions of jet aircraft decreases marginal productivity. Mr. Wemple, in failing to analyze TWA's scheduling experience, does not adequately reflect the decreased marginal productivity of added jet aircraft in his estimates.

Mr. Wemple's assumption that additions and deletions of aircraft would have been at average load factors is unsupported and unsupportable. The worksheets, exhibits and testimony made available to us disclosed no analyses by Mr. Wemple of the load factor experience of other airlines, during



the years when jet aircraft were integrated into domestic airline fleets, to determine whether the assumption is borne out by industry experience. Nor do we find analysis of the year-to-year changes in load factors for TWA operations and variations in load factors among the individual flights of TWA to determine whether short-run additions and deletions of aircraft services were made in fact without a change in the average experienced load factors. Our own analysis shows that there were substantial differences between average load factors and the load factors at which flights were added and deleted.

The estimates of operating cost changes made by Mr. Temple are premised on ~~unsupportable~~ generalizations and assumptions. Arbitrary judgments were made as to the proportions of expenses that would not be increased or decreased by changes in jet and piston aircraft operations, and as to the appropriate factors for estimating cost changes. These judgments were not supported by the experience of TWA and other airlines.

It is not necessary or sufficient to rely on arbitrary judgments in determining which items and proportions of operating costs are fixed and which are variable. There are commonly used methods for making this determination by means of analyses of experienced costs and cost changes. These methods enable the cost estimator to test initial judgments concerning the degree of sensitivity of costs to changes in the scale of

operations. Equally important, these methods enable the cost estimator to test assumptions with respect to the factors that are effective and valid in estimating costs. If Mr. Wemple had used these methods - testing his assumptions in the light of experienced costs of TWA and other airlines - errors in the selection of costing units and in the estimation of unit costs applicable to the changes in operations flowing from the availability or added jet aircraft would have been avoided.

The failure of Mr. Wemple to verify the validity of his costing assumptions is particularly significant because the methods of costing used by him differ in important respects from methods more usually accepted and applied by TWA and others in estimating airline operating expenses. For instance, aircraft and equipment manufacturers use substantially different methods of estimating the comparative aircraft operating costs of new and added aircraft. Similarly, costing methods used by the staff of the CAB and airlines in proceedings before the CAB dealing with the economic effects of changes in operations are substantially different from those applied by Mr. Wemple. In addition, costing methods used by airlines - including TWA - for internal planning and control purposes differ from his costing methods. While mere differences in costing methods, of course, do not signify that Mr. Wemple's methods are "wrong" and that other

methods are "right," the significant departures from more commonly accepted and used methods called for the testing and verification of the validity of the differences, which are not provided by Mr. Wemple. Our own tests show that the departures by him from more generally used methods of costing are not justified.

#### Mr. Wemple's Failure to Develop Articulated Plan

It was not necessary for Mr. Wemple to rely so heavily on unsupportable generalizations and assumptions. Mr. Wemple had both the time and data to develop a detailed and realistic operating plan. Available to him were the records of TWA providing information on the use and performance of each available aircraft, the on-line origin and destination of each TWA passenger and the TWA flight routings used by each passenger. Further available to him were TWA cost records, providing fuller details regarding TWA's cost experience than are publicly available. He had access to records and analyses of ticket sales and passenger revenues needed to establish more precisely the differences in revenue yields for operations in the individual markets served by TWA.<sup>1/</sup>

---

<sup>1/</sup> We note, in this connection, that TWA recently was able to develop from its records the information supplied to the CAB with respect to passenger fares and experienced passenger yields between pairs of cities accounting for 75% of TWA's domestic air passenger traffic, both in terms of passengers and passenger miles. This information was requested by the CAB for a study of the domestic air fare structure. ("Analysis of Domestic Air Fare Structure in Effect during September 1966.")

"DX271A, page III-11  
(S.H.E. Report (Revised) - Volume One)"

The use of these resources would have enabled Mr. Wemple to develop an operating plan realistically integrating the use of added jet aircraft into existing schedule patterns and realistically reflecting the displacements in piston aircraft operations. Guided by information regarding the actual financial performance of scheduled flights, he would have been able to assign added jet aircraft and select the displacements of piston aircraft on an optimum and practical basis.

The use of the resources available to Mr. Wemple would have further provided the costing tools needed for accurate estimation of the specific changes in physical operations that would have occurred under the operating plan. It would have been possible for him to reflect in the cost estimates, for example, the applicable landing fees at airports where changes in operations would be contemplated. It would also have been possible for him to reflect more accurately in the cost estimates the costs of operating aircraft over the stage lengths of flights added and deleted. He thereby could have developed cost estimating relationships consistent with experienced patterns and trends in TWA's actual costs of operation.

Finally, Mr. Wemple would have avoided the risk of significant errors in the revenue estimates by using data for



experienced revenue yields available for individual markets and operations with different types of aircraft. It is inherent in the domestic fare structure that fares per mile and revenue yields per mile for transportation services decrease as the distance of travel increases. Operations conducted at longer flight stage lengths, in general, produce lower revenue yields per mile than operations on shorter stage lengths. Mr. Wemple, in estimating the net change in passenger revenues in TWA's domestic services, has assumed that the average experienced revenue yield per mile for the Domestic Division of TWA would be applicable to added and deleted operations, without reflecting differences in revenue yields applicable to added jet operations in longer than average stage lengths and deleted piston aircraft operations in shorter than average stage lengths. The most accurate method of estimating revenues is to apply the revenue yields for individual city pairs and aircraft types to the estimates of changes in traffic for the city pairs. Accuracy is somewhat impaired by the use of formulas that rely on an overall average and that do not take into account the differences in revenue yields applicable to operations over different flight segments with individual types of aircraft.<sup>1/</sup> The

---

<sup>1/</sup> The CAB domestic air fare structure study, previously referenced, notes the following:

(Fn. cont. on p. III-13)



least accurate of the available revenue estimating procedures is the use of a broad average revenue yield without regard to the degree of comparability between the operations from which the average revenue yield is determined and the operations to which the average revenue yield is applied. Mr. Wemple used this method.

An additional factor, which could have been introduced by Mr. Wemple as a result of access to the primary source records of TWA, is the adjustment of his estimates to take account of the seasonal peaking and ebbing in both domestic and international operations. It is assumed by him that annual averages for load factors, unit operating costs, and revenue yields can be applied to added and deleted operations without recognizing that different load factors, unit costs, and revenue yields apply in estimates relating to changes in operations in the winter as opposed to the summer season. The error arising out of this assumption is most significant for changes in aircraft operations occurring only in the fall and winter

---

(Fn. contd. from p. III-12)

"Inspection of fare data. . . reveals that fares generally vary with distance--the longer the distance, the higher the fare. However, the relationships of fares at various distances are not perfectly consistent in that the fares do not vary in exact proportion to distance. The use of the standard formula is merely a convenient method of expressing the average relationship between fare and distance. Fares derived from these formulas will in some instances closely approximate the actual published fares and will in other instances be substantially different since the relationship of the actual fare to distance varies from market to market."

months of a particular year, i.e., where the assumed delivery schedule calls for the delivery of jet aircraft in late summer or early fall. Since TWA operations are at seasonal ebb during the fall and winter months, load factors are at levels below the average for the year and unit operating costs are somewhat higher than the average annual levels. Revenue yields may be higher or lower than annual averages, depending on differences in the proportions of business and personal air travelers, on the availability of off-season fares, and on differences in the proportions of family groups, students, and other travel which is characterized by marked seasonality. Our analysis shows that failure to make specific allowance for seasonality biases the estimates of changes in net operating profit in the direction of overestimating the profits. We believe that it would have been feasible for Mr. Wemple to avoid this bias by taking advantage of seasonal information available from TWA records.

#### Our approach

Because we have not had access to the information that we believe is needed for the most accurate estimation of net operating profit changes, we have confined our analyses to those matters which present the greatest sources of errors in Mr. Wemple's estimates.

Wherever it appeared, on the basis of our initial examination, that the differences resulting from the substitution of more reasonable premises, or even from the correction of arithmetic, would not change the final estimates substantially, we have adopted Mr. Wemple's premises. We have made only the most significant corrections of the estimates.

Where Mr. Wemple has used assumptions, we have based our estimates on the experience of the airline industry and of TWA available to us. Where his approach is simplistic, we have found it necessary to use somewhat more complex methods of estimating revenue and expense changes in order to reflect more realistically the experienced behavior of revenues and costs in the airline industry.

Even on the basis of our limited departures from Mr. Wemple's assumptions and procedures, and our limited adjustments of Mr. Wemple's estimates, it is clear that added jet aircraft would not have produced added profits from operations. Our conclusions are amply supported by industry experience during this period of re-equipment with jets.

#### Our Conclusion

Our estimates of the increases (decreases) in TWA operating profits for added jet operations and deleted piston operations by Chapter in the C&C Report, the details of which appear hereinafter, are:

(Amounts in Millions of Dollars)

	Chapter II	Chapter III	Chapter IV	Chapter V	Total
Added Jet Operations	(37.47)	0.15	(21.63)	(26.55)	(85.50)
Deleted Piston Operations	16.40	(0.75)	4.03	7.00	26.68
Net Change in Operations	(21.07)	(0.60)	(17.60)	(19.55)	(58.82)

## XI. COMPARATIVE PROFIT STUDY

DLNI has also requested us to review the Comparative Profit Study, TWA 4B, (hereinafter referred to as Comparative Profit Study) which was prepared by C & C and was testified to by Mr. Wemple. DLNI has asked us to give our opinion, based on such review, as to whether the Comparative Profit Study is a standard, recognized or reasonable method of determining the effect on the operating profits of TWA for the years 1959-1963 of its not receiving in the years 1959 and 1960 a jet aircraft fleet consisting of 18 B331 aircraft, 15 B131 aircraft and 30 CV 880 aircraft rather than the jet fleet it did receive in the years 1959-1961.

### 1. General Conclusion

There are standard and accepted methods used in the airline industry for measuring the effect upon an airline's operating profits of changes in operations resulting from the addition and disposition of equipment. The Comparative Profit Study is not such a method. As a quantification of what effect the availability of more or less jet equipment would have had on TWA's operating profits during the 1959-1963 period it is meaningless. Comparisons of the character presented in the Comparative Profit Study might at best be considered a very general and most imprecise index of the overall efficiency of the managements of the compared airlines,



but only after appropriate adjustments had been made to insure their comparability. Even for this limited purpose the Comparative Profit Study has no value, since, in its preparation, Mr. Wemple made no attempt to make the statistics he used comparable or to take into account all other factors affecting either the profits or the profit potentials of the airlines he compared.

## 2. Accepted Methods of Estimation

The most reasonable, realistic and accurate method of measuring the effect that would have been produced on TWA's operating profits as the result of the availability of additional jet equipment would be the development of an articulated operating plan for TWA that would take into account the specific markets in which such additional equipment would be used and the effect of such usage on existing operations. Although he had access to TWA's internal records, Mr. Wemple did not develop such a detailed and comprehensive operating plan, even though analyses of that character are generally required and supplied in route proceedings before the CAB.

Another and more general method of estimation that could be used is illustrated by the procedures we employed in the prior parts of our Report to measure the effect on TWA's operating profits during the 1959 to 1963 period of the additional jet fleet assumed by Mr. Wemple in TWA Ex. 4C.

While we followed generally the approach used by Mr. Wemple, we tested our assumptions in the light of TWA and industry experience and made the indicated adjustments such as, for example, the substitution of marginal load factors for average load factors and the substitution of tapered yields for average yields.

In our opinion, it would be absurd to consider the Comparative Profit Study as a measure of the operating profits TWA would have made with the additional jet equipment assumed by Mr. Wemple. We note in passing that Mr. Wemple quite properly declined to make any such claim for the Comparative Profit Study. While the amount of equipment available to an airline can affect the profitability of its operations, there are many other factors which can have an equal or greater effect on its profitability. The mere addition of seats and flights provides no assurance that the seats will be occupied or the flights patronized.

The important factors which were not considered by Mr. Wemple while preparing the Comparative Profit Study render the study valueless.

### 3. Factors Not Considered

#### a. Load factor

Perhaps the single most important factor affecting the profitability of an airline is the overall load factor it

is able to achieve on its flights. The low overall load factors at which TWA operated during the 1959-1963 period compared with the higher load factors of American (AAL) and Pan American's Atlantic Division (PAA-ATL) were the chief reason for the differences in operating profits. If TWA's passenger load factors during this five-year period had been as high as those of AAL and PAA-ATL for the Domestic and International Divisions respectively, TWA's passenger revenues would have been \$107 million greater without any additions or deletions of equipment. (Exhibit XI-A)

Load factors are influenced by a wide variety of factors. Some are within the control of management, such as advertising, the quality of equipment and terminal facilities, on-time performance, passenger service features, cuisine, fare policies and scheduling. Others, not under management's control, include actions of the CAB and overall demand flowing from the level of economic activity. These are not merely theoretical considerations. Rather they have a real and measurable effect on an airline's operations. Some illustrative examples may be helpful.

Quite obviously, competition has a substantial effect on load factors. CAB decisions during 1959-1964 substantially reduced the percentage of American's monopoly markets, thereby significantly weakening the profit potential of American's

domestic route structure relative to that of TWA<sup>1/</sup> (Exhibit XI-B). In particular, the decision in the Southern Transcontinental Case took away American's great monopoly routes from Texas to the West Coast.

American benefited greatly during the 1961-1962 period from its conversion to "fan jets" and from its advertising program exploiting the superiority of fan jet performance. TWA suffered during this same period because of the inferior quality of its service in some respects, such as poor on-time performance and the lack of modern terminals in Los Angeles until late 1961 and at Idlewild until the spring of 1962. On the other hand, in 1964 TWA reaped considerable temporary competitive benefits from the in-flight movies and as a result of United's disastrous experiment with one-class service, a policy that caused a significant transfer of passengers from United to TWA in the lucrative transcontinental markets.

It is interesting to see that TWA had lower load factors in the earlier period in spite of the fact that TWA was operating a higher percentage of its plane miles, seat miles, and passenger miles with jets during the 1959-1962

---

<sup>1/</sup> We emphatically disagree with Mr. Wemple's statement that the route structures of TWA and the compared airlines were not materially different in 1964-1965 from what they were in 1959-1963. The changes in the route structures of each were numerous and substantial.

period than American and PAA-Atlantic. (Exhibit XI-C) As a comparison of its percentage of seat miles with its percentage of passenger miles shows TWA's load factor problem lay in its jets. From 1961 thru 1963 its percentage of domestic passenger miles in jets was lower than its percentage of domestic seat miles in jets.

b. Additional business activities

The non-comparability of the three airlines may be seen by examining the non-airline activities of TWA. In its 1963 Annual Report (p. 10) published in the spring of 1964, TWA forecast revenues of \$7 million "in its first year" for its new Special Services Division at Cape Kennedy. Apparently this became an even more substantial part of its operations in 1965 because in the 1964 Annual Report (p. 22), TWA forecast \$15 million revenues for the Special Services Division. TWA had no substantial revenues of this nature during the 1959-1963 period and American had no such division in either period.

c. Travel habits

Changing travel habits on the part of the public can have a great impact upon the profit potential of an airline's routes. For example, TWA profited in both its Domestic and International Divisions in 1964 and later periods as the result of such changes. Internationally, TWA benefited significantly vis-a-vis PAA-ATL as the result of the greater



growth in travel between the United States and southern Europe than between the United States and northern Europe. Domestically, TWA benefited from the recent growth of travel to resort areas which TWA serves and American does not. For example, by 1965 Las Vegas had become the destination in six of TWA's top 100 markets. (Exhibit XI-D)

These limited examples are but a few of many that could be used to illustrate the myriad of factors affecting an airline's profitability from year to year.

d. Areas served

There are basic and substantial differences between the domestic operations of TWA and American and between the international operations of TWA and PAA-ATL.<sup>1/</sup> For example, the PAA-ATL certificate includes the entire former operation of American Overseas Airlines to the Scandinavian countries, the Low Countries, northern Germany and Berlin, which TWA is not authorized to serve. Domestically, at the end of 1965 TWA did not have competitive operating rights in 27 out of American's top 50 markets and American did not have competitive operating rights in 31 of TWA's top 50 markets. (Exhibit XI-E) The differences were even greater in 1959.

---

<sup>1/</sup> We caution against the use of the route maps provided by Mr. Wemple in the Comparative Profit Study, because they are replete with errors and because they fail to take into account operating restrictions on various important route segments.

e. Accounting changes

Accounting changes also operate to render comparisons misleading, especially when made over a long period of time. With respect to the comparisons made in the Comparative Profit Study, we note the following examples:

1. During the first period flight equipment rental costs were different for the three airlines than they were in the second period in proportion to their total operating costs. Since the cost of capital of rental aircraft is included in the lease payment, it becomes a direct operating cost; but cost of capital of wholly-owned aircraft becomes a "below-the-line" expense. A simple comparison without correcting all three carriers for this single difference in both periods is misleading. (Exhibit XI-F)
2. Numerous accounting changes and changes in depreciation methods were made by the carriers during these periods. An outstanding example is the special depreciation charge for piston equipment which TWA took in 1961. This added an adjustment of \$26.3 million before taxes (TWA 1961 Annual Report, p. 8) to expense in 1961 and increased TWA's 1964 and 1965 operating profits by the amounts moved forward from those later years to 1961.

3. In 1965, there was the reverse occurrence at American Airlines. The CV-990's which were originally depreciated over a 12-year life, beginning with deliveries in 1962, were changed to a 10-year life in 1965. The effect of this change was to charge a higher rate of depreciation in 1965 than in 1962 and 1963 for the CV-990's, thus reducing AA's net earnings in 1965 by \$1,964,000.<sup>1/</sup>

Other changes in accounting methods, such as TWA's change in use of overhaul reserves at the end of 1963, also made significant differences in reported profits and in the comparability of the reported profits from period to period and from airline to airline.

f. Time periods

The selection of appropriate periods of time is also important if a comparison is to be meaningful. By selecting different time periods, a wide variety of different results can be produced from comparisons of the type made in the Comparative Profit Study. The periods selected by Mr. Wemple, 1959-1963 vs. 1964-1965, were about as different as any two periods that can be imagined. During the 1959-1963 period,

---

<sup>1/</sup> American Airlines 1965 Annual Report, p. 12, n. 2.

the introduction of jet aircraft coincided with a decline in traffic below the levels that had been forecast. The industry entered a period of excess capacity in which profits were the exception, not the rule. By 1964, this trend had been reversed, traffic boomed, load factors were greatly improved, and operating profits were restored to the levels preceding the introduction of jet aircraft.

4. Irreconcilability of the Comparative Profit Study and the C & C Report

The absurdity of the Comparative Profit Study as a measurement of "damages" is shown by a comparison of the profit estimates in the C & C Report with the Comparative Profit Study estimates allocated to individual years (Exhibit XI-G). Internationally, the Comparative Profit Study would add profits of \$31.8 million in 1959 and \$22.3 million in 1963 when only 1.1 and 0.9 jets, respectively, would have been added to TWA operations under the assumptions in the C & C Report. The Comparative Profit Study would add only \$1.8 million in profits in 1962 when 4.8 jets would have been added. In 1963 \$22.3 million in profits is added to the International Division by the Comparative Profit Study, although the C & C Report estimates a reduction of \$900,000. Domestically, the Comparative Profit Study would diminish TWA's operating profit for 1959, although the C & C Report adds two additional jets and estimates additional profits of \$7 million.

In sum, the Comparative Profit Study is meaningless  
; a measurement of damages.



**TWA Passenger Load Factors Compared  
With American and PAA-Atlantic  
1959-1963**

---

<u>Domestic</u>	<u>TWA Load Factor</u>	<u>AAL Load Factor</u>	<u>Load Factor Ratio AAL/TWA</u>
1959	70.5%	70.4%	99.9%
1960	63.9	65.3	102.2
1961	56.7	61.4	108.3
1962	51.3	57.0	111.1
1963	52.8	58.6	111.0
<u>International</u>	<u>TWA Load Factor</u>	<u>PAA-ATL Load Factor</u>	<u>Load Factor Ratio PAA-ATL/TWA</u>
1959	59.7%	69.7%	116.8%
1960	58.9	61.3	104.1
1961	47.3	49.2	104.0
1962	48.9	48.1	98.4
1963	46.9	48.7	103.8

Source: CAB Handbook of Airline Statistics.

## INCREASE IN TWA'S REVENUES BASED ON HIGHER LOAD FACTORS

(\$ million)

Year	<u>TWA Actual Domestic Rev.<sup>1/</sup></u>	<u>Ratio</u>	<u>TWA Constructed Domestic Rev.</u>	<u>Gain</u>
59	\$ 251.4	.9	\$ 251.2	\$ (.2)
60	251.6	102	257.2	5.6
61	250.3	108	271.1	20.8
62	270.8	111	300.9	30.1
63	<u>310.5</u>	111	<u>344.6</u>	<u>34.1</u>
total	\$1,334.6		\$1,424.9	\$ <u>90.3<sup>2/</sup></u>

Year	<u>TWA Actual Int'l. Rev.<sup>1/</sup></u>	<u>Ratio</u>	<u>TWA Constructed Int'l. Rev.</u>	<u>Gain</u>
59	\$ 50.2	117	\$ 58.6	\$ 8.4
60	77.6	104	80.8	3.2
61	61.9	104	64.3	2.4
62	77.0	98	75.7	(1.3)
63	<u>101.4</u>	104	<u>105.3</u>	<u>3.9</u>
total	\$ 368.1		\$ 384.8	\$ <u>16.7<sup>2/</sup></u>

Source: CAB Handbook of Airline Statistics, 1965 Edition.

Differences due to rounding.

Percentage of TWA and American Domestic Traffic  
from Monopoly Markets, 1964 Compared with 1959 1/

	<u>1959</u>	<u>1964</u>	<u>Change</u>
American Airlines	17.5%	4.2%	-13.3%
TWA-Domestic	7.8%	3.7%	- 4.1%

1/ Source: CAB Competition Study, Year 1959 and Year 1964.

**TWA Percentage of Jet Plane Miles, Jet Seat Miles,  
 and Jet Passenger Miles (Scheduled) vs. AA and PAA-ATL  
 1959-1963**

	Percent Jet of Carrier's Total					
	Plane Miles		Seat Miles		Passenger Miles	
	TWA	AAL	TWA	AAL	TWA	AAL
<b>Domestic</b>						
1959	13%	13%	21%	21%	25%	25%
1960	35	32	49	46	49	51
1961	57	50	69	64	67	67
1962	79	62	86	74	83	74
1963	81	69	88	79	86	79
<b>International</b>	<b>TWA</b>	<b>PAA-ATL</b>	<b>TWA</b>	<b>PAA-ATL</b>	<b>TWA</b>	<b>PAA-ATL</b>
1959	1%	27%	3%	41%	3%	50%
1960	54	67	77	79	80	80
1961	86	81	92	88	94	87
1962	99	83	99	88	100	86
1963	99	87	99	91	100	88

Sources: For TWA, TWA Ex. C & C-4(24, 39);  
 for PAA and UAL, CAB Form 41  
 Reports, Schedules T-3

Note: Figures rounded to nearest whole percent.

Las Vegas Markets Shown in TWA Top 100 Domestic Markets, 1965<sup>1/</sup>

<u>Rank as TWA Market</u>	<u>City Pair</u>	<u>Airlines Certificated</u>
#18	Las Vegas-Chicago	TWA and UAL
#25	Las Vegas-New York	TWA and UAL
#77	Las Vegas-San Francisco	TWA, Pacific, Delta, National
#88	Las Vegas-Albuquerque	TWA Monopoly
#90	Las Vegas-Los Angeles	TWA, Western, Bonanza
#99	Las Vegas-Kansas City	TWA, UAL

<sup>1/</sup> Source: CAB Study, Competition Among Domestic Air Carriers, 1965, pages 638 and 639.



"DX271A, Exhibit XI-E, page  
(S.H.E. Report (Revised) - Volume One)

Top 50 Markets in Which TWA and AA Were Not  
Competitively Certificated 1/

TWA Markets in Which AA Was Effectively Restricted  
or Not Certificated

Rank as TWA Market	City Pair	Volume of Passenger Miles in 1965 (million)	AA Certificate
#7	Boston-San Francisco	181	2/
#10	San Francisco-Washington	167	2/
#12	Kansas City-New York	143	AA Not Certificated
#13	Los Angeles-Pittsburgh	143	2/
#15	Chicago-Philadelphia	131	AA Not Certificated
#17	Denver-New York	110	AA Not Certificated
#18	Chicago-Las Vegas	105	" "
#19	New York-Pittsburgh	98	2/
#20	Kansas City-Los Angeles	96	AA Not Certificated
#22	Indianapolis-New York	94	2/
#23	Chicago-Kansas City	91	AA Not Certificated
#24	Chicago-Pittsburgh	84	" "
#25	Las Vegas-New York	76	" "
#26	Dayton-New York	75	2/
#27	Dayton-Los Angeles	75	2/
#28	Philadelphia-San Francisco	68	2/
#29	Kansas City-San Francisco	67	AA Not Certificated
#30	Baltimore-San Francisco	65	2/
#31	Pittsburgh-San Francisco	63	2/
#33	Los Angeles-San Francisco	57	AA can operate car planes only
#36	Albuquerque-Chicago	50	AA Not Certificate
#37	Kansas City-St. Louis	48	" "
#38	Albuquerque-Los Angeles	44	" "
#39	Chicago-Columbus	43	" "
#44	Columbus-Los Angeles	39	2/
#45	Boston-Pittsburgh	34	2/
#46	Albuquerque-New York	33	AA Not Certificate
#47	Pittsburgh-Philadelphia	33	" "
#48	Baltimore-Kansas City	32	" "
#49	Albuquerque-San Francisco	31	" "
#50	Cincinnati-San Francisco	31	2/
Total TWA Passenger Miles		2,407	in 31 listed marke

Source: CAB Study, Competition Among Domestic Air Carriers, 1965,  
pages 638 and 551.

AA effectively restrained by long haul restriction or stop restriction

"DX271A, Exhibit XI-E, Page 1  
(S.H.E. Report (Revised) - Volume One)

AA Markets in Which TWA Was Effectively Restricted  
or Not Certificated

Rank as AA Market	City Pair	1965 Passenger miles (million)	TWA Certificate
# 6	Detroit-New York	203	TWA Not Certificated
# 7	Dallas-New York	191	" "
# 9	Dallas-Los Angeles	165	" "
#14	Chicago-Washington	132	1/
#16	Chicago-Dallas	127	TWA Not Certificated
#18	Dallas-San Francisco	111	" "
#19	Chicago-Detroit	103	1/
#22	Buffalo-New York	99	TWA Not Certificated
#23	El Paso-New York	84	" "
#25	Chicago-San Diego	77	" "
#26	Cleveland-New York	77	TWA restricted to intl. flights only
#29	Los Angeles-Memphis	69	TWA Not Certificated
#30	New York-San Diego	63	" "
#31	Memphis-New York	59	" "
#33	Boston-Detroit	54	" "
#34	Chicago-St. Louis	53	" "
#35	Dallas-Phoenix	53	" "
#36	Dallas-Washington	52	" "
#38	Dallas-Philadelphia	51	" "
#39	New York-Rochester	49	" "
#40	Nashville-New York	48	" "
#41	New York-Washington	44	TWA restricted to intl. flights only
#44	Buffalo-Chicago	41	TWA Not Certificated
#45	Buffalo-Los Angeles	41	" "
#48	Baltimore-Dallas	38	" "
#49	Chicago-Syracuse	37	" "
#50	Dallas-St. Louis	37	" "
Total AA Passenger Miles		1,955	in 27 listed markets

1/ TWA effectively restricted through long haul restrictions or stop  
restrictions or both.

"DX271A, Exhibit XI-F  
(S.H.E. Report (Revised) - Volume One)"

**Flight Equipment Rentals as a Percent of Total  
(Millions of Dollars) Operating Expense 1959-1965,  
Selected Airlines**

Year	Total Operating Expense				Total Flight Equipment Rentals			
	TWA Dom.	TWA Intl.	AA Dom.	PAA-ATL	TWA Dom.	TWA Intl.	AA Dom.	PAA-ATL
1959	247.3	82.5	346.4	144.0	8.0	2.7	1.9	--
1960	278.0	83.9	396.9	169.8	13.8	4.8	5.7	0.8
1961	289.9	84.9	395.7	203.9	1.4	0.1	7.2	1.5
1962	306.1	86.8	433.1	215.5	3.0	0.2	--	2.3
1963	<u>325.9</u>	<u>109.7</u>	<u>440.5</u>	<u>224.5</u>	<u>0.4</u>	<u>4.2</u>	<u>--</u>	<u>2.5</u>
Totals	1447.2	447.8	2012.6	957.7	26.6	12.0	14.8	7.1
Percent	100%	100%	100%	100%	1.8%	2.7%	0.7%	0.7%
1964	368.7	120.7	473.3	249.8	1.6	5.0	--	2.2
1965	<u>430.6</u>	<u>143.9</u>	<u>530.9</u>	<u>266.7</u>	<u>0.6</u>	<u>3.8</u>	<u>--</u>	<u>1.1</u>
Totals	799.3	264.6	1004.2	516.5	2.2	8.8	--	3.3
Percent	100%	100%	100%	100%	0.3%	3.3%	0.0%	0.6%

Sources: Form 41's and ATA Reports.

ADDED JETS BY YEARS

<u>C &amp; C Report</u>	<u>1959</u>			<u>1960</u>		
	<u>Int</u>	<u>Dom</u>	<u>Sys</u>	<u>Int.</u>	<u>Dom</u>	<u>Sys</u>
Ch.II(p.13)	0.2		0.2	3.6	1.4	5.0
Ch.III(p.42)	0.9	2.0	2.9	0.6	0.7	1.3
Ch.IV(p.53)					10.3	10.3
Ch.V(p.66)	—	—	—	—	<u>5.1</u>	<u>5.1</u>
Total	1.1	2.0	3.1	4.2	17.5	21.7

	<u>1961</u>			<u>1962</u>		
	<u>Int</u>	<u>Dom</u>	<u>Sys</u>	<u>Int</u>	<u>Dom</u>	<u>Sys</u>
Ch.II	3.7	2.2	5.9	4.8	1.0	5.8
Ch.IV		5.2	5.2			
Ch.V	—	<u>9.9</u>	<u>9.9</u>	—	<u>10.0</u>	<u>10.0</u>
	3.7	17.3	21.0	4.8	11.0	15.8

	<u>1963</u>		
	<u>Int</u>	<u>Dom</u>	<u>Sys</u>
Ch.II	0.9	0.5	1.4
Ch.V	—	<u>7.9</u>	<u>7.9</u>
	0.9	8.4	9.3

"DX271B  
(S.H.E. Report (Revised) - Volume Two)"

REPORT OF  
SIMAT, HELLIESEN & EICHNER, INC.  
VOLUME II



## A. MARGINAL STAGE LENGTHS

## (OPERATIONAL CHANGES IN JET AND PISTON SERVICES)

The uses of jet aircraft in domestic services changed during the 1959-1963 period. When the jets were first introduced, they were deployed by airline managements, in view of the heavy investment which they represented, in the most profitable types of operations--the long haul, high load factor flight segments. As jets continued to be added, they were used in less economic and profitable operations because the more profitable uses had been exhausted. This pattern of change in usage of resources is characteristic in industry and has been popularly described by the term "diminishing utility."

Because aircraft usage in the International Division of TWA is dominated by transatlantic operations, changes in the average stage lengths of flights as jet equipment was added were not as substantial as in the Domestic Division. But the diminishing productivity of added capacity in terms of load factors was no less severe.

In the Domestic Division, comprehensive analysis of TWA's schedules during the period of jet service buildup shows that there were parallel downward trends in the average stage

lengths of both jet and piston flights from 1959 to 1963.

Added jet flights were added at progressively decreasing stage lengths which were well below the average of existing flights with jets. The piston flights being deleted were generally those operated at significantly longer stage lengths than the average stage length for the type of piston aircraft deleted.

To perform our schedule analyses, we converted all schedule information for TWA's domestic services into a form suitable for computer processing. For each flight and each segment of a flight scheduled during each month of the five year 1959-1963 period, we recorded the flight itinerary, the departure and arrival times at each point served by the flight, the number of times monthly that the flight was scheduled to be operated (exclusive of holiday cancellations), the type of equipment, the classes of services offered, the number of available first class and coach seats, and the distances between the points served.<sup>1/</sup> From this basic information we were able to determine the number of flights scheduled daily between each combination of points, the average stage length of flights operated with each type of aircraft, and various other significant relationships.

We were able to determine, by appropriate sorting and tabulating of the available information, the average stage length of flights added or deleted for each type of aircraft

---

<sup>1/</sup> The complete transcription of TWA's domestic schedules for computer processing involved the creation of 46,795 individual records of flight segment data. By summarizing the data for monthly flights over the same flight segments with the same type of aircraft, the number of records was reduced to 12,047.

during each consecutive month of the period. To obtain this information, we first compared the number of daily services with each type of aircraft operated monthly over each of the flight segments (pairs of points) where non-stop services were provided with that type of aircraft. In those cases where the number of daily flight services over a particular flight segment increased from one month to another, we computed the increase in daily flight services and the increase in daily aircraft miles scheduled. By aggregating the increases in daily flight services among all flight segments and the increases in daily aircraft miles and, further, by dividing the daily aircraft mileage totals by the daily flight service totals, we were able to compute the average stage lengths of flights added each month with each type of aircraft. By determining and collecting the information for flight segments where services were reduced, we similarly were able to determine the average stage lengths of deleted flights with each type of aircraft.

When we compared the average stage length of added jet flights from one month to the next with the average stage length of all flights operated with the same type of jet aircraft in the earlier month, the comparisons showed a pronounced pattern. Average stage lengths of jet flights added were generally lower

than the average stage length of all jet flights operated in the prior month.

Comparisons between the average stage lengths of piston aircraft services deleted and the average stage length of piston services operated with the same types of aircraft in the prior month showed an opposite pattern. In the case of deleted piston aircraft services, the average stage lengths were longer than the average stage lengths of all flights scheduled in the prior month. The results of the comparisons of the added jet and deleted piston aircraft services with the average stage lengths of the services to which they were added and from which they were deleted are presented in Exhibits A-A, A-B, and A-C.

Exhibit A-A shows that the pattern of declining average distance of domestic nonstop jet flights as the number of jets increased was well established and common to the entire domestic trunk industry during the 1959-1963 period.

Exhibit A-B shows that as the B-707-131's and CV-880's were added to TWA's fleet, the jets added flew shorter distances than the jets already in service. For the 30 months from mid-1960 to the end of 1962, the stage length of the jet flights added with B-707-131's was less than the average for 26 months and above the average for

only four months. As a result, twelve-month moving averages of the stage lengths declined sharply from about 1,000 miles to below 600 miles per flight within a two-year period. In our opinion, a further addition of jets would have accelerated the decline.

Exhibit A-C shows that as the number of jets increased each year from 1959 through 1963, the average non-stop flight distances for the year declined for the L-049-749 and L-1049G aircraft. Exhibit A-C shows the annual declines in the two types of aircraft; it also shows the declines in monthly average stage lengths and compares the monthly average historical stage length of the two types of aircraft with monthly and 12 month averages of the stage length of deleted flights.

The averages, showing a sharp drop in length of piston flights as additional jets were added, signify that if even more jets had been added to TWA's domestic operations for 1959-1963, the average stage length of piston services would have dropped even more sharply.

Mr. Wemple inherently assumed that the added jet and deleted piston flights would be at the same stage lengths as the average jet or piston flights actually operated each year. We have statistically analyzed the relationship of the added jet and deleted piston flights to determine if it was possible to make a more accurate



"DX271B, page A-6  
(S.H.E. Report (Revised) - Volume Two)"

estimate of the stage lengths of these flights. We found that the relationships set forth in Table A-I represent a statistically valid and significant improvement, in estimating the stage lengths of added jet and deleted piston flights, over the use of average stage lengths of existing jet and piston flights.

Table A-I

**RELATIONSHIPS FOR ESTIMATING THE STAGE LENGTHS OF ADDED  
JET AND DELETED PISTON AIRCRAFT SERVICES FROM  
EXPERIENCED AVERAGE STAGE LENGTHS**

Added Jet Services

<u>Type of Aircraft</u>	<u>Statistically Determined Formula for Estimating Stage Length of Added or Deleted Flights</u>
B-707-131	59.8% of average stage length plus 258 miles
B-707-331	40.2% of average stage length plus 498 miles
CV-880	45.0% of average stage length plus 387 miles
B-707-131B	50.3% of average stage length plus 524 miles

Deleted Piston Services

L-1649A	113% of average stage length plus 45 miles
L-1049G/H	141% of average stage length less 132 miles
L-049/749	158% of average stage length less 103 miles
M-404	203% of average stage length less 140 miles

Sources: TWA 4C-3 and Computer Print-outs.

The formulas set forth in Table A-I were determined by regression analysis and are as follows:

Table A-II

Type of Aircraft	Formula
B-707-131	$258 + [( .598 ) (SL)]$
B-707-331	$498 + [( .402 ) (SL)]$
CV-880	$387 + [( .450 ) (SL)]$
B-707-131B	$524 + [( .503 ) (SL)]$
L-1649A	$45 + [( 1.13 ) (SL)]$
L-1049G/H	$-132 + [( 1.41 ) (SL)]$
L-049/749	$-103 + [( 1.58 ) (SL)]$
M-404	$-140 + [( 2.03 ) (SL)]$

There were insufficient data to establish reliable relationships for estimating the stage lengths of added services with B-720B aircraft or the stage lengths of deleted services with L-1049, DC-3 and CV-240 aircraft. To the extent that operations with these aircraft would have been affected, we have used the average stage length for the added and deleted services for want of a better alternative.

The stage length relationships determined from TWA's actual experience as it added domestic jet services enabled us to make more reliable estimates, for each year, of the stage lengths of added jet flights and deleted piston flights. Because we developed the relationships from schedule information exclusively, the relationships can be properly applied only to the estimates of stage lengths in scheduled services. Our estimates for changes in aircraft miles also include changes in the miles flown in nonscheduled (charter) revenue passenger services. We have no basis for believing that the stage lengths for added and deleted nonscheduled services would have been different than they were in existing services. Consequently, for added and deleted nonscheduled services, we have used historical average stage lengths, which are determinable from data reported quarterly. <sup>1/</sup>

<sup>1/</sup> TWA Ex. C & C 4(24).

We made the necessary adjustment to obtain the overall average stage length of added and deleted services by further assuming that the added scheduled and nonscheduled miles would be in the same relative proportions as the miles actually flown in scheduled and nonscheduled services in the same years. The overall average stage length of added and deleted flights was calculated for each year and aircraft type as follows:

Overall Average Stage Length of Added or Deleted - Services	Proportion of Total Revenue Aircraft Miles in scheduled Services	x	Estimated Average Stage Length of Added or Deleted Flights in Scheduled Services
	+ Proportion of Total Revenue Aircraft Miles in Nonscheduled Services	x	Average Stage Length of Non- scheduled Rev- enue Flights

The results of our calculation of the average stage lengths of added and deleted services with each equipment type, compared with the average stage lengths assumed by Mr. Wemple, are shown in Exhibit A-D. For example, Mr. Wemple makes the inherent assumption for costing purposes that the marginal stage lengths of the B-331 flights added in C & C Report, Chapters II and III for 1960 would be the same as those of existing flights, or 1,841 miles. We have estimated that these stage lengths would be 1,250 miles for

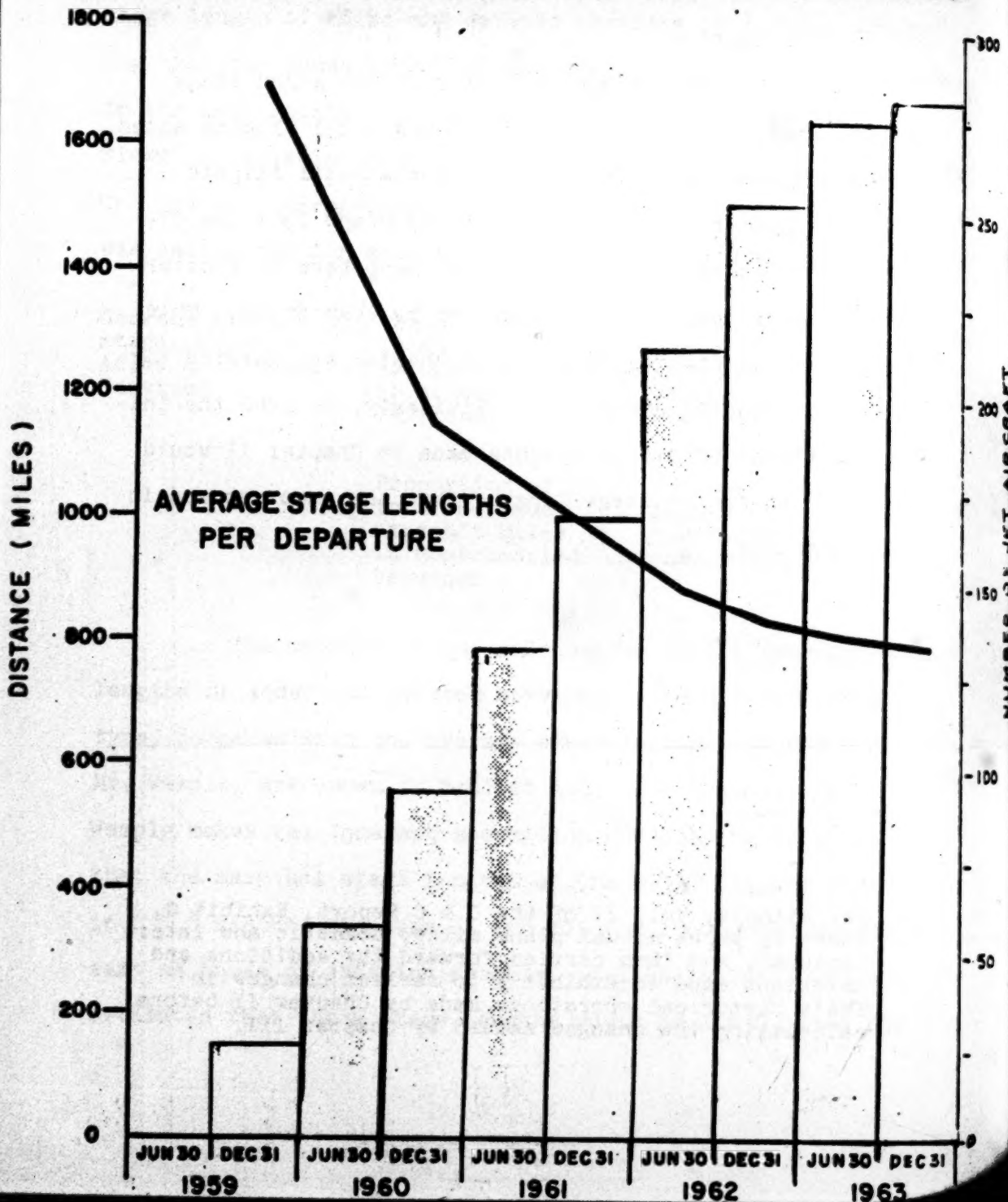
the jets added by Chapter II and 1,140 miles for the jets added by Chapter III. This makes a difference in revenue and cost estimation.

As Exhibit A-D shows, in 1960 the added stage lengths would have been shorter for the B-331 flights added by C & C Report Chapter III than for the B-331 flights added by Chapter II. Similarly, in 1960 and 1961 the CV-880 flights added by Chapter V would have been at shorter stage lengths than the flights added by Chapter IV. This is because the changes made in one chapter are carried forward to succeeding chapters. <sup>1/</sup> Similarly, in 1960 the initial deletions of piston flights made in Chapter II would have been at longer stage lengths than the ones removed in later chapters.

1/ For example, Vol. IV of the C & C Report, Exhibit G, Sheet 2, shows actual plane miles, domestic and international, and then carries forward the additions and deletions made in Exhibit F to reflect changes in TWA's historical operations made by Chapter II before calculating the changes caused by Chapter III.

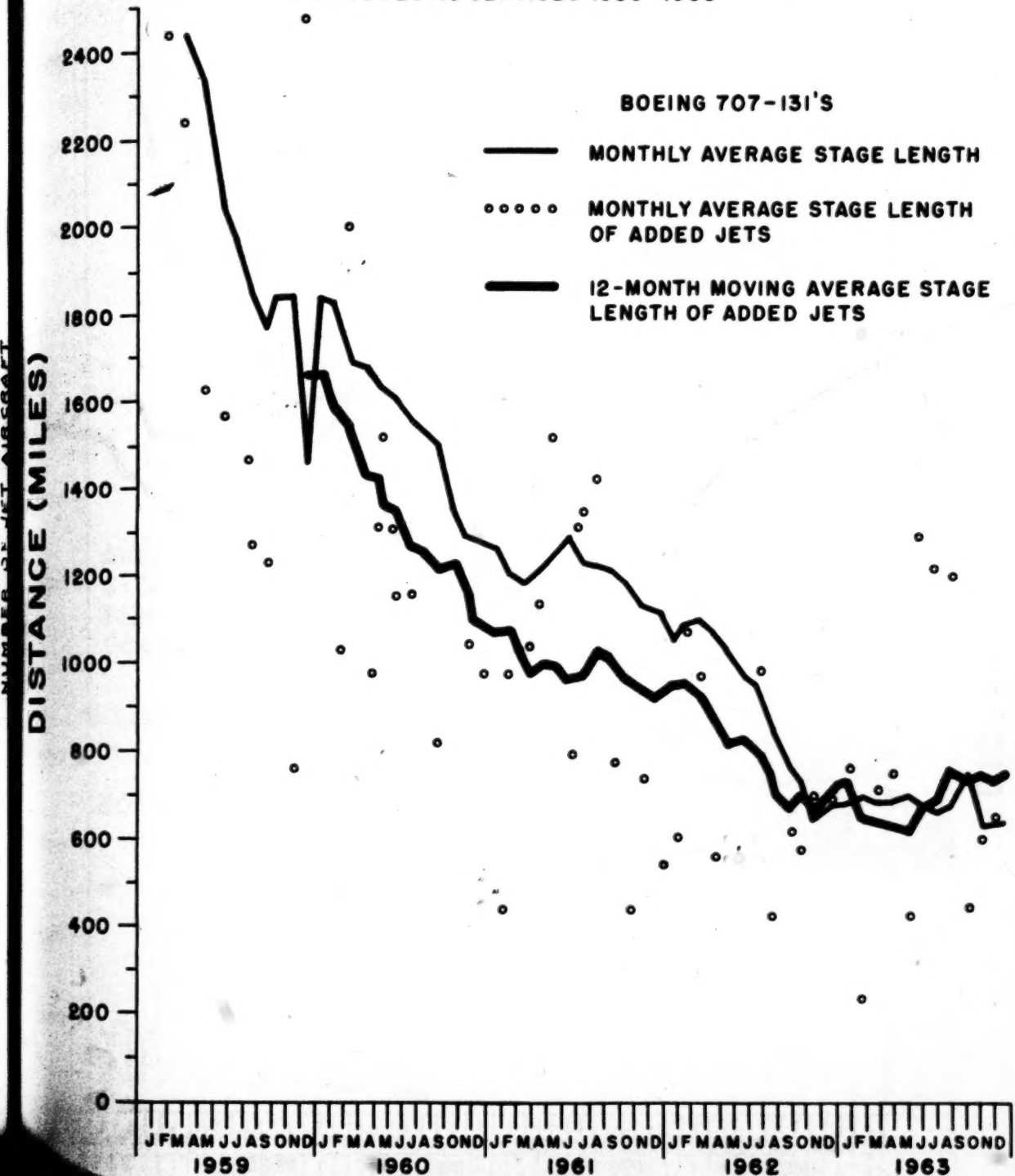


# AS THE NUMBER OF JETS INCREASED NON-STOP FLIGHT DISTANCES DECREASED DOMESTIC TRUNK LINE CARRIERS 1959-1963



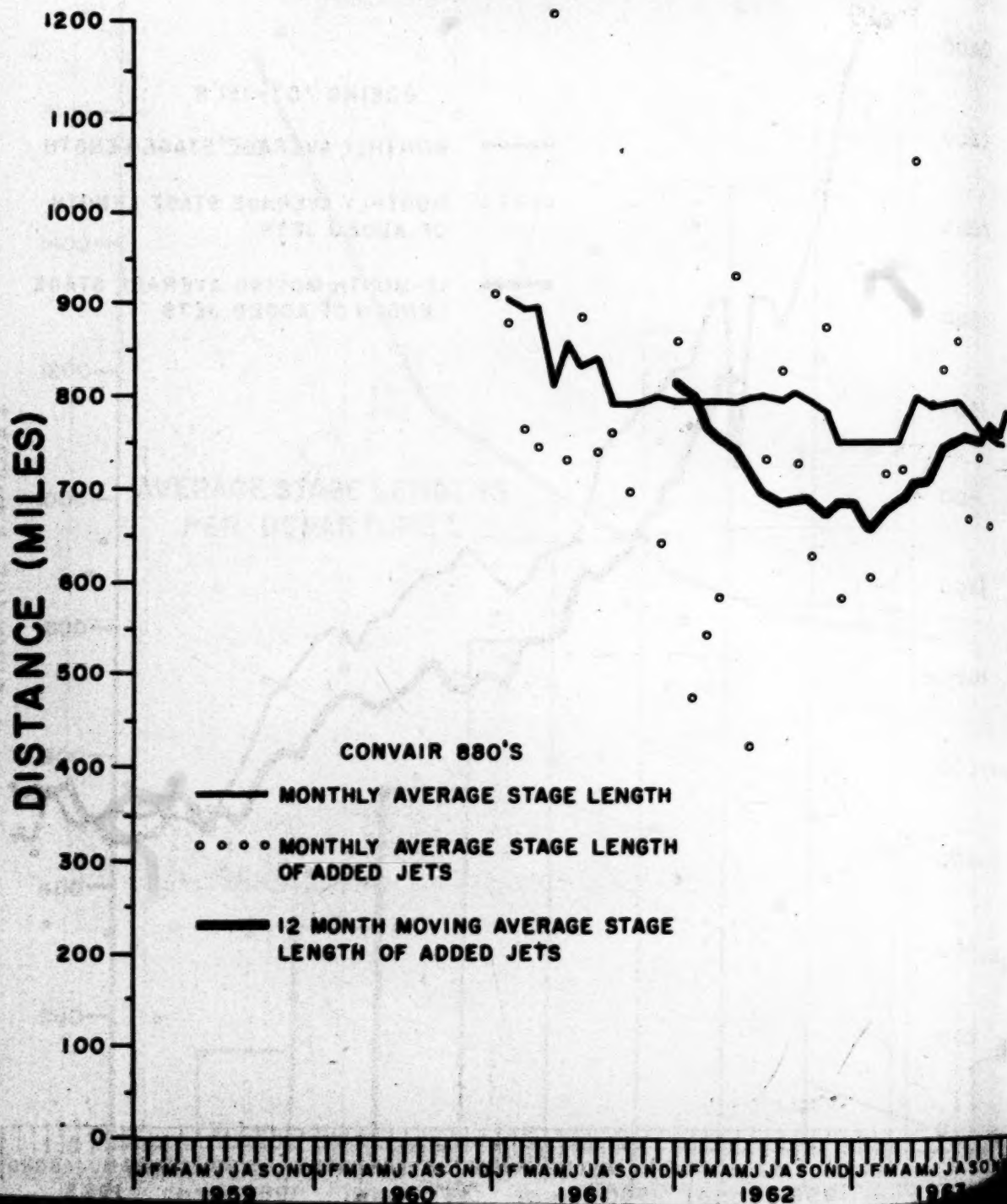
# JETS ADDED TO THE FLEET FLEW SHORTER DISTANCES THAN JETS ALREADY IN THE FLEET

TWA DOMESTIC SERVICES 1959-1963



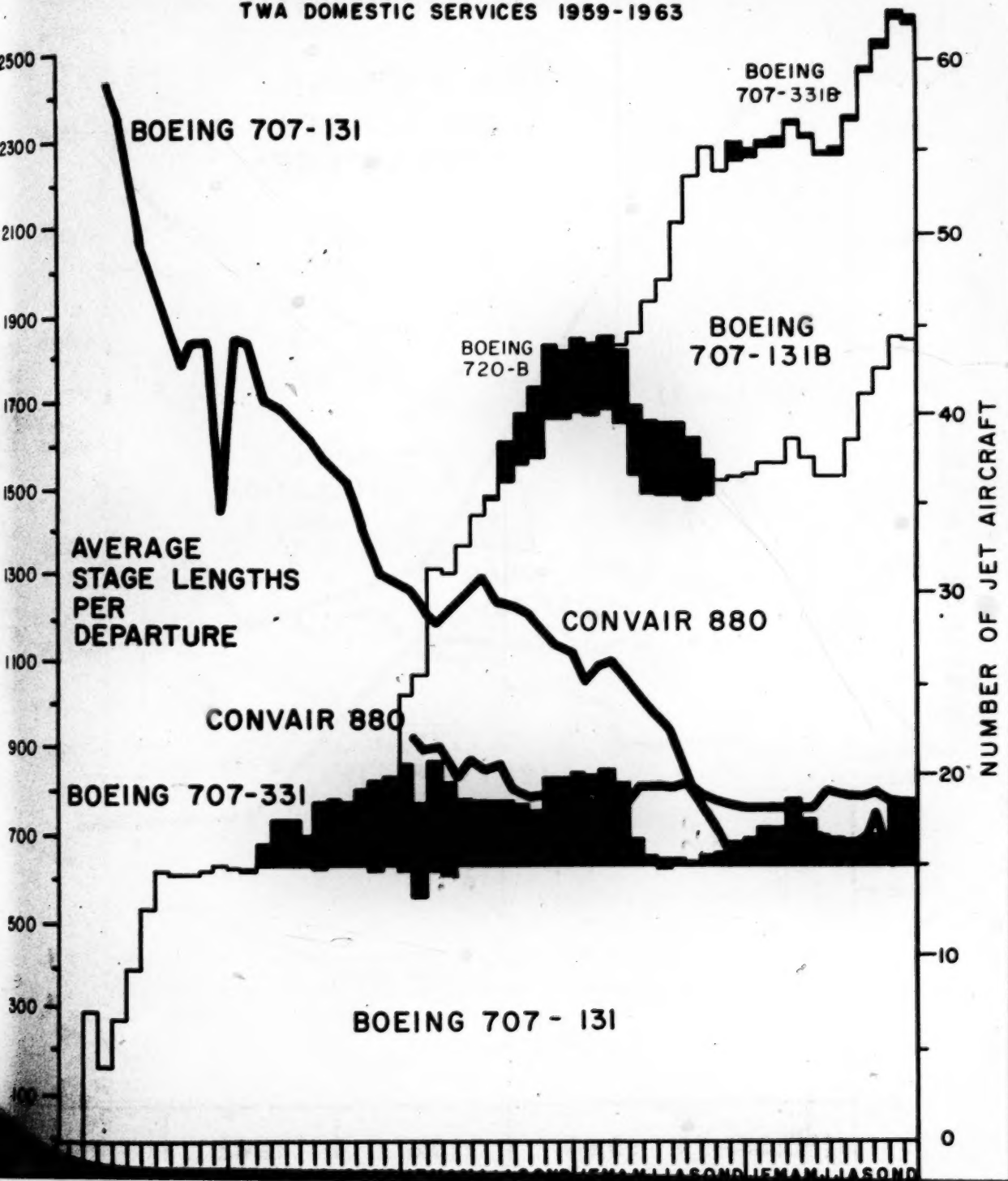
# JETS ADDED TO THE FLEET FLEW SHORTER DISTANCES THAN JETS ALREADY IN THE FLEET

TWA DOMESTIC SERVICES 1959-1963



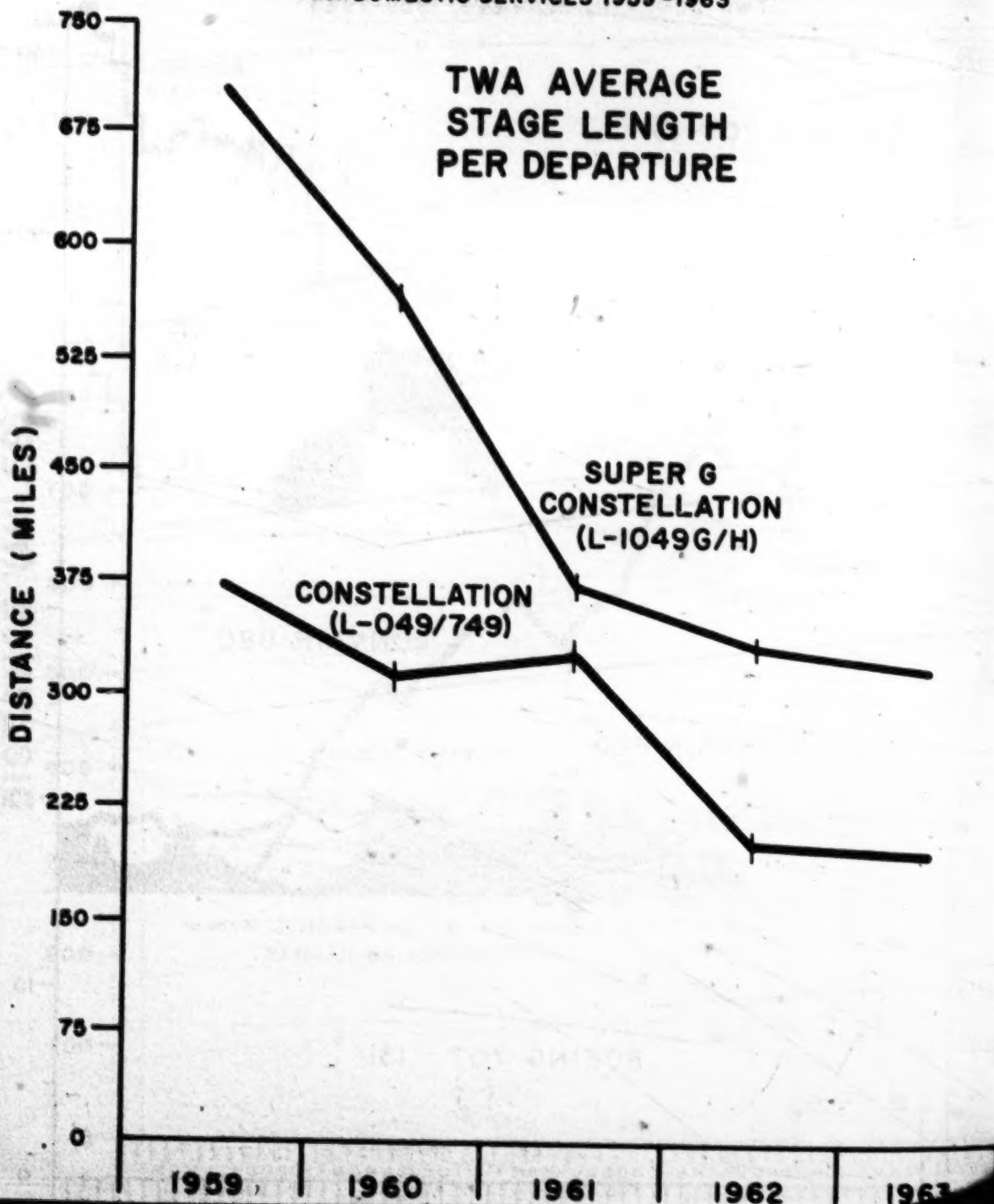
# AS THE NUMBER OF JETS INCREASED NON-STOP FLIGHT DISTANCES DECREASED

TWA DOMESTIC SERVICES 1959-1963



# AS THE NUMBER OF JETS INCREASED NON-STOP FLIGHT DISTANCES DECREASED

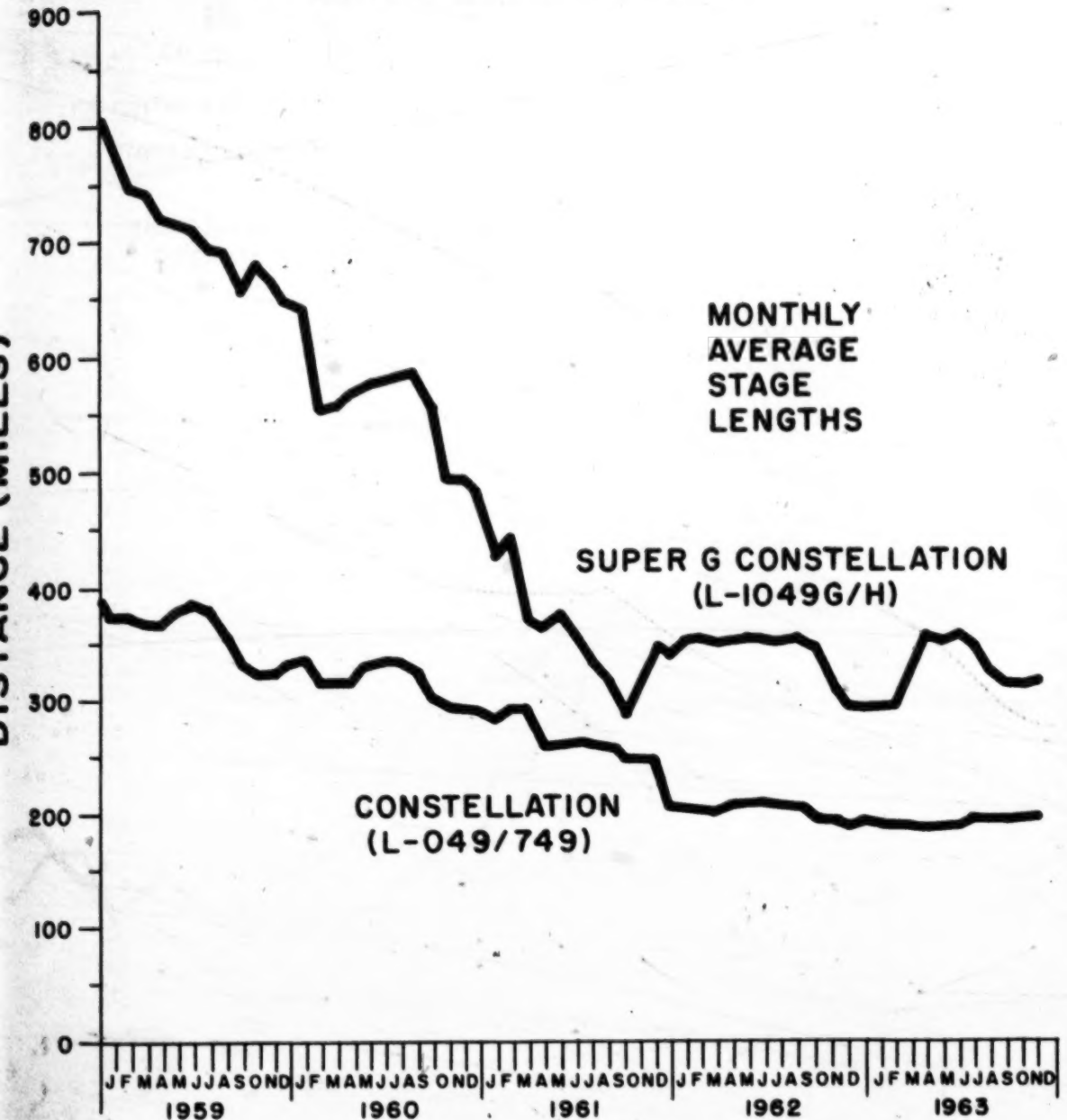
TWA DOMESTIC SERVICES 1959-1963





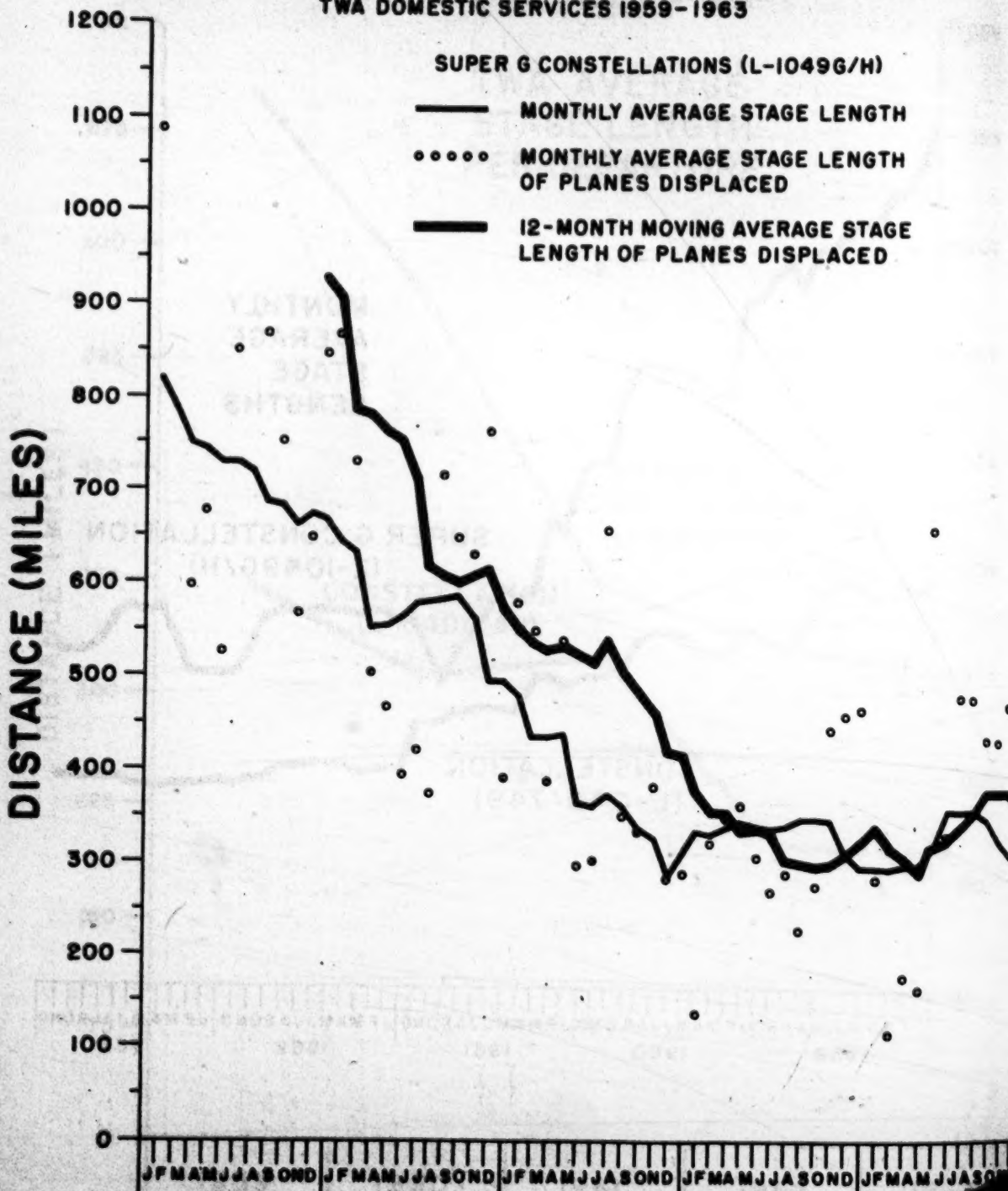
# AS THE NL INCREASED NON-STOP FLIGHT DISTANCES DECREASED

TWA DOMESTIC SERVICES 1959-1963



# PISTON AIRCRAFT DISPLACED FROM SERVICE FLEW LONGER DISTANCES THAN THOSE THAT REMAIN IN SERVICE

TWA DOMESTIC SERVICES 1959-1963



Domestic Stage Lengths of Added Jet and Deleted Piston Aircraft

Year	C&C Chapter Number	Jet Aircraft Added					
		B-707-131		B-707-331		CV-880	
		S.H.E.	C&C	S.H.E.	C&C	S.H.E.	C&C
1959	III	1,360	1,844	1,140	1,844 <sup>1/</sup>	--	--
1960	II	--	--	1,250	1,871	--	--
	III	--	--	1,140	1,871	--	--
	IV	--	--	--	--	756	819 <sup>2/</sup>
	V	--	--	--	--	727	819 <sup>2/</sup>
1961	II	--	--	1,057	1,389	--	--
	IV	--	--	--	--	756	819
	V	--	--	--	--	747	819
1962	II	--	--	868	921	--	--
	V	--	--	--	--	743	791
1963	II	--	--	819	799	--	--
	V	--	--	--	--	733	769

1/ Used B-131 data for 1959.

2/ Used CV-880 data for 1961.

Exhibit A-D  
Page 2 of 3Domestic Stage Lengths of Added Jet and Deleted Piston Aircraft

<u>Year</u>	<u>Chapter Number</u>	<u>Piston Aircraft Deleted</u>			
		<u>M-404</u>		<u>L-1049<sup>1</sup></u>	
		<u>S.H.E.</u>	<u>C&amp;C</u>	<u>S.H.E.</u>	<u>C&amp;C</u>
1959	III	187	*	488	*
	II	177	*	406	*
	III	173	*	403	*
	IV	173	*	405	*
	V	136	*	382	*
1961	II	148	*	319	*
	IV	117	*	320	*
	V	--	-	308	*
1962	II	--	-	216	*
	V	--	-	212	*
1963	II	--	-	204	*
	V	--	-	203	*

1/ Since we were unable to determine a reliable statistical relationship from the limited observations available for this aircraft, average existing stage length was used.

\* These aircraft not deleted by C&C.

Domestic Stage Lengths of Added Jet and Deleted Piston Aircraft

Year	C&C Chapter Number	Piston Aircraft Deleted					
		L-1049G <sup>1/</sup>		L-1049H <sup>1/</sup>		L-1649A	
		S.H.E.	C&C	S.H.E.	C&C	S.H.E.	C&C
1959	III	--	--	598	*	1,600	1,375
1960	II	670	*	914	*	643	531
	III	663	*	--	--	640	531
	IV	660	569	793	*	640	*
	V	570	569	--	--	625	*
	II	394	373	--	--	411	*
1961	IV	390	373	--	--	208	*
	V	367	373	--	--	--	--
	II	339	335	--	--	--	--
	V	330	335	--	--	--	--
1962	II	316	319	--	--	488	*
	V	316	319	--	--	464	*

1/ 1049G and 1049H relationships are the same, as no distinction was made in the stage lengths of the two aircraft types.

\* These aircraft not deleted by C&C.

Sources: TWA Ex. 4C-3 and C&C 4(24).



### C. DOMESTIC TRAFFIC ESTIMATES

Mr. Wemple's estimates of net changes in domestic revenues assume that added jet aircraft of each type would add to TWA's domestic traffic in the proportion that the added capacity is to the existing capacity of aircraft of the same type. Thus, if the available seat miles operated with B-331 aircraft were increased by 10%, Mr. Wemple would estimate that 10% would be added to the passenger revenue miles flown with B-331's. This assumption, which of all Mr. Wemple's assumptions has by far the greatest dollar impact on his estimates of net gain in domestic operating profits, is contradicted by the experience of TWA and of the other domestic trunk carriers.

Mr. Wemple's assumption presupposes that TWA could introduce jet capacity into the market in unlimited quantity without suffering a decrease in average jet load factors. But the history of the changes in traffic that resulted from the addition of jet services establishes that TWA and other airlines were not able to maintain average load factors. With each addition of jet capacity, the traffic increase that resulted was less than proportionate to the added capacity.

In estimating the losses in revenues from deletion of piston aircraft, Mr. Wemple similarly assumed that traffic would be reduced in proportion to the capacity deleted. This assumption is likewise contradicted by experience. With each decrease in piston aircraft capacity operated by the domestic trunklines, the loss in piston traffic was more than proportionate to the reduced capacity.

Mr. Wemple's procedures rest on the underlying assumption that in the period under consideration, TWA could use net added capacity as effectively and economically as the capacity to which it was added. Our review of the experience of TWA and the domestic airlines shows that the trunkline industry was unable to add capacity profitably during the greater part of the period. In our opinion, a further addition of capacity by TWA, or by any other air carrier, would have been even more unprofitable.

The economic climate for increased airline capacity in the early years of jet services was not favorable. In 1959, the U. S. economy had emerged from the recession in business activity that started in August, 1957 and continued through April, 1958. But, in June, 1960, the economy again started a downward drift which continued through February, 1961. The trough of the downturn in 1961 was followed by a period of gradual recovery through the third quarter of 1962 and, finally, by an accelerated period of growth which has persisted until recently.<sup>1/</sup> The paths of downward drift and recovery may be traced through the indexes of

---

<sup>1/</sup> See Business Cycle Developments, July, 1966, published by the Bureau of the Census, U.S. Department of Commerce.

Gross National Product (GNP) and Disposable Personal Income (DPI), both indexes adjusted for changes in price levels during the period, in Table C-I. GNP, as an index of total business activity, provides an index to the air travel activity of the business sector of the economy. DPI reflects more directly the ability of people to engage in air travel for personal reasons. The more important turning points in the trends of the indexes are evident from an examination of the table.

TABLE C-I

TRENDS IN GROSS NATIONAL PRODUCT AND DISPOSABLE  
PERSONAL INCOME  
1959-1965

Year	Quarter	Gross National Product (Billions of 1958 Dollars)	Disposable Personal Income (Billions of 1958 Dollars)	Index (First Quarter 1959 = 100.0)	
				Gross National Product	Disposable Personal Inc.
(1)	(2)	(3)	(4)	(5)	(6)
1959	I	468.6	329.3	100.0	100.0
	II	479.9	334.9	102.4	101.7
	III	475.0	332.6	101.4	101.0
	IV	480.4	335.4	102.5	101.9
1960	I	490.2	338.8	104.6	102.9
	II	489.7	341.2	104.5	103.6
	III	487.3	341.8	104.0	103.8
	IV	483.7	339.5	103.2	103.1
1961	I	482.6	341.8	103.0	103.8
	II	492.8	347.7	105.2	105.6
	III	501.5	352.8	107.0	107.1
	IV	511.7	359.6	109.2	109.2
1962	I	519.5	362.6	110.9	110.1
	II	527.7	366.8	112.6	111.4
	III	533.4	368.5	113.8	111.9
	IV	538.3	371.1	114.9	112.7
1963	I	541.2	375.7	115.5	114.1
	II	546.0	378.0	116.5	114.8
	III	554.7	383.1	118.4	116.3
	IV	562.1	388.1	120.0	117.9
1964	I	569.7	395.7	121.6	120.2
	II	578.1	405.5	123.4	123.1
	III	585.0	410.8	124.8	124.7
	IV	587.2	413.9	125.3	125.7
1965	I	600.3	418.8	128.1	127.2
	II	607.8	423.7	129.7	128.7
	III	618.2	436.8	131.9	132.6
	IV	631.2	443.9	134.7	134.8

Note: Data are seasonally adjusted quarterly totals at annual rates.

Cols. 3 and 4: The National Income and Product Accounts of the United States, 1929-1965, Office of Business Economics, U.S. Department of Commerce.

Col. 5: Col. 3 ÷ 468.6 (GNP in 1st Quarter, 1959)

Col. 6: Col. 4 ÷ 329.3 (DPI in 1st Quarter, 1959)



While the volume of domestic air travel has shown a long term trend of generally more rapid rate of growth than the economy as a whole, it mirrors the forces of growth and decline in the economy. Passenger traffic (revenue passenger miles flown in domestic trunkline scheduled services) increased from 1958 to 1959, during the period of economic recovery. From 1959 through 1961, the years during which the bulk of the additional TWA capacity would have been introduced under the jet equipment premises of Mr. Wemple, the volume of traffic stayed nearly level, gaining at the rate of 2% per year. In 1962, in the first phase of the recovery, traffic increased by 8%. Even this was below the historical rate of growth of 10% per year in the 1955-1959 period preceding the introduction of jet aircraft. It was not until 1963 that the rate of traffic increase returned to the level of the pre-jet era.<sup>1/</sup>

These economic factors explain, in part, why increases in air traffic during the 1959-1963 period were not proportionate to the increases in aircraft capacity operated, as Mr. Wemple assumed. Load factors declined precipitously from 1959 through 1962, as jet aircraft were added, leveling out only in 1963 when the decline was arrested by the accelerated growth of the economy, a corresponding growth in domestic trunkline air traffic, and a tapering in the number of jet aircraft added.

---

<sup>1/</sup> The rates of increase in revenue passenger miles flown by domestic trunklines were computed by us from information contained in the CAB Handbook of Airline Statistics, 1965 ed.



"DX271B, page C-6  
(S.H.E. Report (Revised) - Volume Two)"

Table C-II

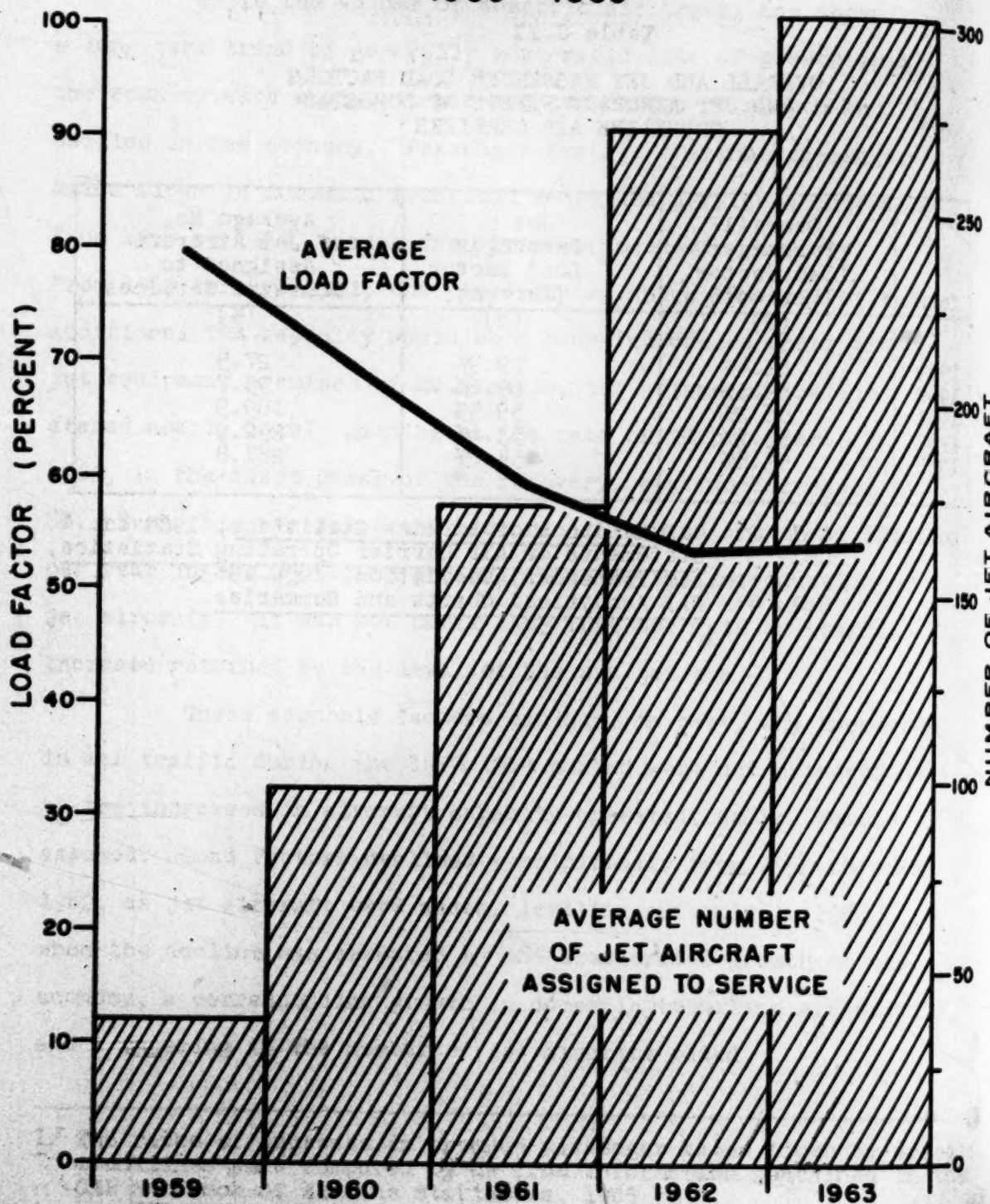
OVERALL AND JET PASSENGER LOAD FACTORS  
AND JET AIRCRAFT FLEETS OF DOMESTIC  
TRUNKLINE AIR CARRIERS

Year (1)	Overall Passenger Load Factor (Percent) (2)	Jet Passenger Load Factor (Percent) (3)	Average No. of Jet Aircraft Assigned to Domestic Services (4)
1959	61.4%	79.9%	27.5
1960	59.5%	69.6%	95.7
1961	56.2%	59.5%	169.9
1962	53.3%	53.6%	252.9
1963	53.8%	54.0%	281.8

Sources: Col. 2: CAB Handbook of Airline Statistics, 1965 ed.  
Col. 3: Statements of Air Carrier Operating Statistics,  
Air Transport Association, 1959-1963.  
Col. 4: CAB Analytical Charts and Summaries.

# AS THE NUMBER OF JETS INCREASED LOAD FACTORS DECREASED

U.S. DOMESTIC TRUNKLINES  
1959 - 1963



SOURCE: TABLE C - II

A further explanation is the condition of severe overcapacity which occurred as new jet equipment, the orders for which were placed several years earlier, was added in an air travel market whose growth was slowed by an unanticipated slowing of the pace of economic growth. The oversupply of capacity that prevailed throughout the U.S. domestic air transport industry had its roots in the general failure of air traffic forecasters, during the period when commitments for jet capacity were concluded, to foresee the taper in traffic growth that was encountered when the orders were filled. Representative forecasts of domestic passenger air traffic, made in the 1956-1958 period, show how consistently and substantially the actual traffic of the 1959-1963 period was overestimated.

Table C-III

**REPRESENTATIVE FORECASTS OF U.S. DOMESTIC AIR TRAVEL  
MADE IN THE YEARS 1956 THROUGH 1958 COMPARED WITH ACTUAL  
AIR TRAVEL DURING THE YEARS 1959 THROUGH 1963**

Billions of Revenue Passenger Miles						
Year	Actual	Civil Aeronautics Administration (1956)	Canadair (1956)	Boeing (1956)	Trunkline Industry (1957)	Convair (1958)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1959	29.3	31.8	30.9	35.1	31.0	30.0
1960	30.6	35.0	34.1	46.0	35.2	33.7
1961	31.1	37.8	37.6	58.0	39.8	38.0
1962	33.6	41.1	41.2	70.0	42.7	42.2
1963	38.5		45.0	80.0		45.7

- Sources:
- Col. 2: CAB Handbook of Airline Statistics, 1965 ed.
  - Col. 3: Civil Aviation and Federal Airways Forecasts, 1960-1965, Staff study of Civil Aeronautics Administration December, 1956; interpolated for years 1959, 1961, and 1962 by staff of Civil Aeronautics Board in General Passenger Fare Investigation, 32 CAB 291.
  - Col. 4: A Critical Review of Earlier Forecasts of Air Traffic and a New Approach, Report No. 93, Sales Engineering Division, Canadair, Ltd., January, 1956.
  - Col. 5: Traffic Forecast of Domestic U.S. Airlines to 1965, Boeing Airplane Company, December, 1965.
  - Col. 6: Forecasts of U.S. domestic trunkline air carriers compiled by Bureau Counsel, CAB and reproduced as Appendix 28 to the Opinion, General Passenger Fare Investigation, 32 CAB 291.
  - Col. 7: Post War Growth of Commercial Air Transportation in the Free World, Convair Division of General Dynamics, 1958.



"DX271B, page C-10  
(S.H.E. Report (Revised) - Volume Two)"

The decline in load factors - the result of adding capacity more rapidly than traffic or, put conversely, the failure of traffic to increase in proportion to the addition of capacity - was a matter of grave industry and governmental concern during the period because the added investment in jet capacity was unprofitable. Table C-IV and Chart C-II trace the almost catastrophic decline in airline earnings suffered by the U.S. trunkline industry during the introduction and build-up of jet services in the years 1959 through 1961 when, under Mr. Wemple's assumptions, TWA would have added 16 aircraft to its jet fleets. Also shown is the increasing spread between operating profit and net income, after interest charges, caused by the failure of added jet services during the period of traffic recovery to produce operating profits more than marginally in excess of the interest charges on debt.



Table C-IV

Earnings of U.S. Trunkline Carriers*		
Year	Operating Profit (Millions)	Net Income After Special Items (Millions)
(1)	(2)	(3)
1959	\$ 124	\$ 71
1960	80	16
1961	13	(36)
1962	158	40
1963	259	77

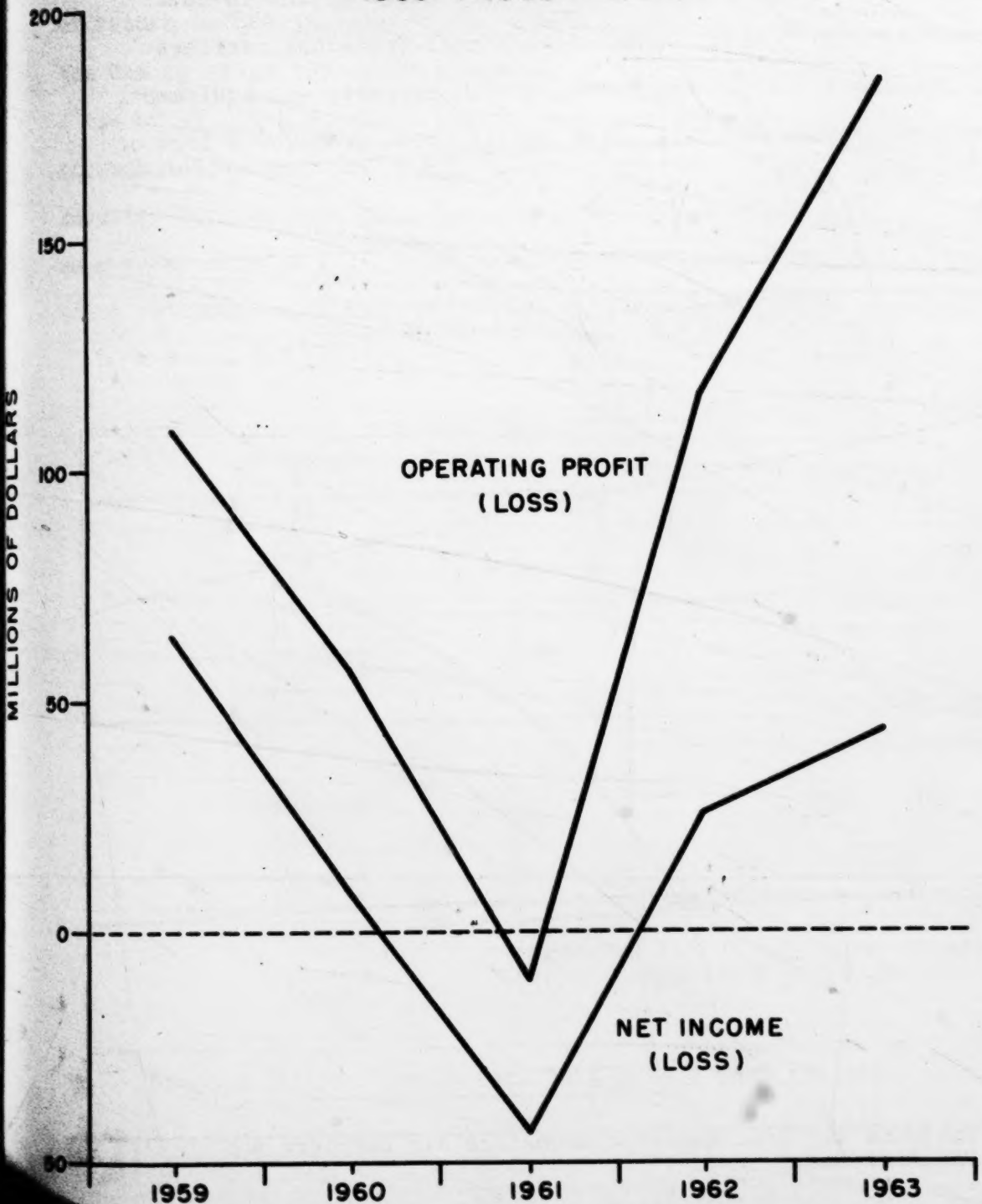
( ) Denotes loss.

\* System operations of U.S. domestic trunkline carriers and Pan American.

Source: Cols. 2 and 3: CAB Handbook of Airline Statistics, 1965 ed.

CH/

**OPERATING PROFIT AND NET INCOME  
AFTER SPECIAL ITEMS  
U. S. DOMESTIC TRUNKLINES  
1959 - 1963**



From the beginning of 1959 to the end of 1961 approximately one billion dollars were added to the investments of U.S. domestic and international trunkline carriers in additional flight equipment, ground property and equipment, and net working capital. Each dollar added produced a loss of 9 cents in operating profit:

Table C-V

TOTAL INVESTMENT AND OPERATING PROFIT OR LOSS  
OF U.S. TRUNKLINE CARRIERS I  
1959-1961

Item (1)	Amount (Millions) (2)
Total Investment	
December 31, 1958	\$ 1,587
December 31, 1961	<u>2,574</u>
Added Investment	\$ 987
Operating Profit	
1958	\$ 105
1961	<u>13</u>
Decrease	\$ 92
Loss in Operating Profit for Each Dollar of Added Investment	\$ <u>0.09</u>

Source: Col. 2: CAB Handbook of Airline Statistics, 1965 ed.

I Includes all U.S. domestic trunkline air carriers and Pan American.

As a result of this decline in profitability, the rate of return before investment tax credit - a measure employed by the CAB to gauge the appropriateness of airline earnings - reached a low of 4% for U.S. certificated route air carriers from 1959 through 1963. This was the lowest average rate of return for the industry for any five consecutive postwar years. It compares with an average rate of return of 7% for the preceding 1955-1958 period and a rate of return of 11% for the following 1964-1966 period.

TABLE C-VI

AVERAGE TOTAL INVESTMENT, NET INCOME BEFORE  
INTEREST AND AFTER TAXES, AND RATE OF RETURN  
FOR U.S. TRUNKLINE AIR CARRIERS  
1955-1958, 1959-1963, 1963-1966

Year	Total Investment (Millions)	Net Income Before Interest and Investment Tax Credit and After Taxes (Millions)	Rate of Return (Percent)
(1)	(2)	(3)	(4)
1955	\$ 871	\$ 86	9.85%
1956	1,058	93	8.78
1957	1,310	66	5.02
1958	1,531	81	5.28
1955-1958 Average	\$1,192	\$ 82	6.88
1959	\$1,916	\$ 115	6.02
1960	2,326	71	3.05
1961	2,717	43	1.59
1962	2,877	150	5.21
1963	2,825	168	5.93
1959-1963 Average	\$2,532	109	4.30
1964	\$3,024	\$ 295	9.77
1965	3,563	429	12.03
1966*	4,038	498	12.33
1964-1966 Average	\$3,542	\$ 407	11.49

\* Year ended June 30, 1966

Source: Cols. 2, 3 and 4: Vol. I, No. 1, Chart Book of Airline  
Economic Trends, CIVIL Aeronautics  
Board, November 1966



The general decline in average load factors from 1959 to 1962 signifies that each addition of capacity produced a less than proportionate increase in traffic. To put it another way, the marginal load factors - that is, the ratio of added traffic to added capacity - were below the average load factors.

It is the marginal load factor, the ratio of the net traffic added by an added flight to the capacity added by the flight, rather than the actual load factor of the added flight, which is the relevant consideration in determining whether the addition of the flight is profitable or unprofitable. The marginal load factor for added flights is generally less than the actual load factors experienced by the flights because added flights compete to some extent with existing flights of the same carrier and divert traffic from the existing flights. Thus, only part of the actual traffic carried on the added flight is new, or added, traffic; the remainder is diverted traffic which adds no new revenues.

The primary cause of the decline in overall domestic load factors during the period of jet introduction was the decline in jet aircraft load factors. A decline in the load factors of piston-engine and turbo-prop aircraft, while not so pronounced, also contributed. In Table C-VII the trends of annual average load factors in jet and non-jet aircraft services are shown for the domestic scheduled operations of trunkline air carriers. Also shown are the marginal load factors of jet and non-jet services computed by dividing the changes in seat miles flown from one year to another into the corresponding changes in passenger miles.

TABLE C-VII

TRENDS IN INDUSTRY LOAD FACTORS OF JET AND  
NON-JET AIRCRAFT SERVICESScheduled Domestic Operations of Trunkline Air Carriers  
1959-1964

Annual Data and Average Load Factors						
Jet Aircraft Services				Non-Jet Aircraft Services		
Year	Revenue Passenger Miles (Millions)	Available Seat Miles (Millions)	Passenger Load Factor (Percent)	Revenue Passenger Miles (Millions)	Available Seat Miles (Millions)	Passenger Load Factor (Percent)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1959	3,066	3,839	79.9%	25,061	41,954	59.7%
1960	9,995	14,357	69.6	19,238	34,797	55.3
1961	15,596	26,207	59.5	13,939	26,318	53.0
1962	20,743	38,681	53.6	11,085	21,056	52.6
1963	25,539	47,265	54.0	10,345	20,337	53.3
1964	30,842	55,803	55.3	10,815	19,439	55.6
Change from Prior Year and Marginal Load Factors						
1960	6,929	10,518	65.9%	5,823	7,157	81.4%
1961	5,601	11,850	47.3	5,299	8,479	62.9
1962	5,147	12,474	41.2	2,854	5,262	53.7
1963	4,796	8,584	55.9	740	719	33.2
1964	5,303	8,538	62.1	(470)	898	
Change from 1959 to 1964	27,776	51,964	53.4	14,246	22,515	63.3

Sources: Cols. 2, 3, 5, & 6: Statements of Air Carrier Operating Statistics, Air Transport Association, 1959-1964.

Col. 4: Col. 2 + Col. 3

Col. 7: Col. 5 + Col. 6

Since the marginal load factors for added jet services shown in Table C-VII were aided by the growth in traffic produced by forces in the economy, they are higher than they would have been in the absence of such traffic growth. Similarly, the marginal load factors for deleted non-jet services are lower than they would have been in the absence of traffic growth, because traffic growth operates to increase the availability of traffic to the non-jet services remaining after the deletions and thus reduces the decrease in non-jet passenger miles associated with the decrease in non-jet seat miles flown. In Table C-VIII following, we have decreased the revenue passenger miles reported as flown by the trunkline carriers in 1959-1964 in proportion to the increase in the DPI index and have computed marginal load factors for the added jet and deleted non-jet services using these adjusted passenger miles. The adjusted marginal load factors represent the experienced marginal load factors after removing the influence of the economic growth in this period.

Table C-VIII

ESTIMATES OF INDUSTRY MARGINAL LOAD FACTORS OF ADDED  
JET AND DELETED NON-JET SERVICES AFTER ADJUSTMENT FOR  
TRAFFIC CHANGES RESULTING FROM ECONOMIC GROWTH

Scheduled Domestic Operations of Trunkline Air Carriers  
1959-1964

Year	Annual Data and Average Load Factors					
	Jet			Non-Jet		
	Revenue Passenger Miles Adjusted for Economic Growth Since 1959 (Millions)	Available Seat Miles (Millions)	Passenger Load Factor (Percent)	Revenue Passenger Miles Adjusted for Economic Growth Since 1959 (Millions)	Available Seat Miles (Millions)	Passenger Load Factor (Percent)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1959	3,066	3,839	79.9%	25,061	41,954	59.7%
1960	9,784	14,357	68.1	18,831	34,797	54.1
1961	14,808	26,207	56.5	13,235	26,318	50.3
1962	18,806	38,681	48.6	10,050	21,056	47.7
1963	22,305	47,265	47.2	9,472	20,337	46.6
1964	25,266	55,803	45.3	8,860	19,439	45.6
Change from Prior Year and Marginal Load Factors						
1960	6,718	10,518	63.9%	6,230	7,157	87.0%
1961	5,024	11,850	42.4	5,596	8,479	66.0
1962	3,998	12,474	32.0	3,185	5,262	60.5
1963	3,499	8,584	40.8	578	719	80.4
1964	2,961	8,538	34.7	612	898	68.2
Change from 1959 to 1964	22,200	51,964	42.7	16,201	22,515	72.0



"DX271B, page C-20  
(S.H.E. Report (Revised) - Volume Two)"

Sources: Col. 2: Col. 2 of Table C-VII, adjusted by dividing annual totals by indexes of DPI based on data from the Economic Report of the President, January 1967, p. 232 as follows:

Year	DPI (Billions of 1958 Dollars)	Indexes (1959 = 1.0000)
1959	\$ 330.0	1.0000
1960	340.2	1.0216
1961	350.7	1.0532
1962	367.3	1.1030
1963	381.3	1.1450
1964	406.5	1.2207

Col. 3: Col. 3 of Table C-VII

Col. 4: Col. 2 + Col. 3

Col. 5: Col. 5 of Table C-VII divided by indexes of DPI

Col. 6: Col. 6 of Table C-VII

Col. 7: Col. 5 + Col. 6



TWA's domestic load factor experience paralleled the experience of the industry. From 1959 to 1963 overall average load factors in TWA's scheduled services declined from 71% to 53%. Marginal load factors for added jet services were likewise much lower than average load factors, even without adjustment for traffic changes due to changes in the economy, averaging 51.5% for the 1959-1963 period. Marginal load factors after adjustment for changes in the economy were even lower, comparing closely with the adjusted marginal load factors for added jet services throughout the industry.<sup>1/</sup> Marginal load factors for TWA's deleted piston services were higher than average load factors for such services, both before and after traffic adjustment, also paralleling the industry experience. In Table C-IX following, we have computed marginal load factors for TWA's jet and piston aircraft operations, before and after adjustment of traffic for changes in the economy.

In adjusting traffic to eliminate from the year-to-year changes in volume the effects of year-to-year changes in the economic climate for travel, we have reduced annual traffic levels by 1% for each 1% growth in DPI, starting with the year 1959. Our adjustment is based on recent studies which have indicated that the market for air travel is, in economic terms, "income elastic,"

---

<sup>1/</sup> An average of 40% for the 1959-1963 period, compared with an industry adjusted marginal load factor of 43%.

meaning that a 1% change in income produces a change of more than 1% in traffic.<sup>1/</sup> In using the change in DPI, rather than in GNP, as the basis for the adjustment and in decreasing annual traffic levels by only 1% for each 1% change in DPI, we have used a lower index of economic growth and attributed a lesser rate of response in traffic than indicated by the studies in the interests of assuring that the traffic adjustments are understated rather than overstated.

---

<sup>1/</sup> See Forecasts of Passenger Traffic of Domestic Trunk Air Carriers, Domestic Operations, Scheduled Services, 1965-1975, Staff Report No. 5, Research and Statistics Division, Bureau of Accounts and Statistics, CAB, September 1965 and Economic Feasibility of Alternative Programs for Washington National Airport, prepared for the Federal Aviation Agency by Operations Research Incorporated, January 1966.

Table C-IX

ESTIMATES OF TWA MARGINAL LOAD FACTORS OF ADDED JET AND DELETED  
PISTON AIRCRAFT SERVICES BEFORE AND AFTER ADJUSTMENT OF TRAFFIC  
CHANGES RESULTING FROM ECONOMIC GROWTHScheduled Domestic Operations of TWA  
1959-1964Annual Data and Average Load Factors  
Jet Aircraft Services

Year (1)	Revenue Passenger Miles (Millions)			Passenger Load Factor (Percent)	
	Before Adjustment for Economic Growth Since 1959	After Adjustment for Economic Growth Since 1959	Available Seat Miles (Millions)	Based on Unadjusted Traffic	Based on Adjusted Traffic
	(2)	(3)	(4)	(5)	(6)
1959	1,146	1,146	1,379	83.1%	83.1%
1960	2,072	2,028	3,019	68.6	67.2
1961	2,861	2,716	5,148	55.6	52.8
1962	3,474	3,150	7,081	49.1	44.5
1963	4,564	3,986	8,798	51.9	45.3
1964	5,921	4,850	10,648	55.6	45.5

## Change from Prior Year and Marginal Load Factors

1960	926	882	1,640	56.5%	53.8%
1961	789	688	2,129	37.1	32.3
1962	613	434	1,933	31.7	22.5
1963	1,090	836	1,717	63.5	48.7
1964	1,357	864	1,850	73.4	46.7
Change from 1959 to 1964	4,775	3,704	9,269	51.5	40.0

## Piston Aircraft Services

Year (1)	Revenue Passenger Miles (Millions)			Passenger Load Factor (Percent)	
	Before Adjustment for Economic Growth Since 1959	After Adjustment for Economic Growth Since 1959	Available Seat Miles (Millions)	Based on Unadjusted Traffic	Based on Adjusted Traffic
	(2)	(3)	(4)	(5)	(6)
1959	3,433	3,433	5,114	67.1%	67.1%
1960	2,379	2,329	3,943	60.3	59.1
1961	1,387	1,317	2,339	59.3	56.3
1962	951	862	1,542	61.7	52.9
1963	740	646	1,244	59.5	51.9
1964	610	500	933	65.4	53.6

## Change from Prior Year and Marginal Load Factor

1960	1,054	1,104	1,171	90.0%	94.3%
1961	992	1,012	1,604	61.8	63.1
1962	436	455	797	54.7	57.1
1963	211	216	298	70.8	72.5
1964	130	146	311	41.8	46.9
Change from 1959 to 1964	2,823	2,933	4,181	67.5	70.0

"DX271B, page C-24  
(S.H.E. Report (Revised) - Volume Two)"

Sources: Cols. 2 and 4: C & C-4(24) and CAB Form 41 Report,  
Sched. T-3 for TWA Domestic Division,  
Year Ended Dec. 31, 1964.

Col. 3: Col. 2 divided by DPI Indexes shown  
in Source for Col. 2, Table C-VIII

Col. 5: Col. 2 ÷ Col. 4

Col. 6: Col. 3 ÷ Col. 4



Although the average experienced marginal load factors for TWA's added jet services for the 1959-1963 period were 51.5% based on reported traffic and 40% based on traffic adjusted for economic growth, Mr. Wemple has estimated that TWA would have been able to absorb a further volume of jet capacity at marginal load factors averaging 62%. Mr. Wemple has also estimated that the piston aircraft services deleted by TWA as a result of the added jet capacity would have had an average marginal load factor of 61%. This compares with an average marginal load factor for TWA's deleted piston services of 67.5% before adjustment and 70.2% after adjustment. Obviously, the load factors used by Mr. Wemple bear little relation to reality and result in gross overstatements of the added jet traffic and gross understatements of the deleted piston aircraft traffic which would have resulted from the assumed changes in jet and piston capacity.

In the absence of more detailed data, TWA's experienced marginal load factors by year adjusted for economic growth, as set forth in Table C-IX, provide the most reliable basis for estimating the added and deleted passenger miles that would have resulted from the assumed changes in available seat miles operated.

We have used the average marginal load factors for the combined experience of all jet and all piston aircraft operations because our analyses of schedule changes during the period of the build-up of domestic jet services show the uses of different aircraft types among the two categories of aircraft to be heavily interrelated. Analysis of TWA domestic schedules disclosed a



"DX271B, page C-26  
(S.H.E. Report (Revised) - Volume Two)"

distinct pattern of displacement in piston aircraft services-- a ripple effect wherein aircraft of each type displaced in part aircraft services with the next smaller aircraft type and were displaced, in part, by services with the next larger aircraft type (See Part B). The same type of analysis further disclosed a high degree of intercorrelation among the changes in services with the various types of jet aircraft. We found the following degrees of correlation among the additions of services of one jet type and deletions of services of another jet type on segments where aircraft of the two types were operated:

Table C-XI

CORRELATION BETWEEN FLIGHT SEGMENT ADDITIONS AND DELETIONS OF AIRCRAFT SERVICES (1.00 is perfect correlation)					
	B-331	CV-880	B-131B	B-331B	B-720B
(1)	(2)	(3)	(4)	(5)	(6)
B-131	.84	.86	.83	.75	.56
CV-880			.72	.83	.73
B-331		.58	.49	1.00	1.00
B-131B				.68	.85

Source: Computer Analysis of TWA Domestic Schedules

TWA's traffic during the 1959-1963 period was increased from year-to-year by a decrease in the real price of its services to the traveling public and by improvements in its operating authority and non-stop services, independently of the increase stimulated by economic growth. We have not adjusted annual traffic growth to remove from the traffic totals the effects of fare and service improvements not directly flowing from the availability of additional jet aircraft. Since our calculated marginal load factors are higher than they would be if we had adjusted for these factors, our estimates tend to overstate the traffic that would have been added by further jet services and lost by further deletion of piston aircraft services.

Even on this conservative basis, we have computed that Mr. Wemple's estimates of the increase in passenger traffic from the addition of jet services are overstated by 1.7 billion passenger miles, equal to 42.6% of his total estimate of added jet traffic in TWA domestic services. His estimates of deleted piston aircraft traffic are understated by 50.8 million passenger miles, equal to 28.9% of his total estimate. The resulting overstatement of added jet revenues aggregates \$97.0 million in domestic passenger revenues and \$101.8 million in total transportation revenues, applying Mr. Wemple's revenue estimating factors. His estimates of piston aircraft service passenger revenues deleted are understated to the extent of \$2.9 million in passenger revenues and \$3.0 million in total transportation revenues.

"DX271B, page C-28  
(S.H.E. Report (Revised) - Volume Two)"

The effect of using incorrect load factors on Mr. Wemple's estimates of net change in TWA's Domestic Division operating profits is to overstate the estimated benefit to profits by \$104.8 million (\$101.8 million plus \$3.0 million). Since the total estimated benefit is only \$51.3 million, including the estimated benefits from added jet services in the International Division, it is clear that application of the appropriate marginal load factors wipes out any thought of benefits and establishes a detriment to TWA's operating profit from the assumed additions to jet services in the neighborhood of \$40.8 million, before any correction of Mr. Wemple's inappropriate yields and costing.

### E. INTERNATIONAL REVENUE ESTIMATES

In Chapters II and III of the C&C Report, Mr. Wemple has assumed that with added and earlier B-331 jets, TWA would have provided additional seats in scheduled transatlantic service, that it would thereby have increased its percentage of the total scheduled transatlantic (IATA) seats, and that the total number of TWA scheduled transatlantic (IATA) passengers would have increased in the same proportion as TWA's share of IATA seats. Having estimated TWA's annual increase in IATA passengers on the basis of these assumptions, Mr. Wemple then concludes that TWA's total International Division passenger revenues would have increased in the same percentage as the estimated increase in TWA's IATA passengers.

Mr. Wemple committed two major errors in his estimates. First, he overestimated the percentages of IATA seats and passengers that TWA would have obtained with the assumed additional jets. Second, he erred in assuming that all of TWA's International Division revenues would have increased in proportion to increases in those percentages, ignoring the fact that much of TWA's international revenue was produced by services that, in fact, decreased as its transatlantic services increased.

In this Part of our Report we estimate the percent-

ages of IATA seats and passengers TWA realistically would have obtained with the added and earlier B-331 jets and the revenues which, in fact, would be expected to increase in relation to the estimates of the increase in TWA's IATA passengers.

1. IATA Seats and Passengers

a. The relationship between seats and passengers.

Mr. Wemple assumes that TWA's percentage of IATA passengers would have increased at the same rate as its percentage of IATA seats. We have used the same assumption for purposes of our Report although share of available IATA seats is not, in our opinion, the exclusive guide to share of available IATA traffic.

The division of traffic among competing airlines and services presents difficult estimating problems because of the number and complexity of considerations involved. Differences exist in the capacity provided by individual carriers, in the fares to passengers, in the time of flights by day of week and hour of day and in passenger preferences resulting from national ties, currency restrictions or business and government policies. All of these differences contribute to differences in market shares. It is an obvious oversimplification to assume that any single consideration can be used as the sole basis for estimating how traffic would be



divided if TWA's share of transatlantic seats were altered. The division of traffic in proportion to the division of IATA seats does not, however, afford an unreasonable approximation in the absence of a specific plan for the operation of TWA's assumed additional international jet services.

b. Increase in TWA's percentage of IATA seats.

For 1959 and 1960, Mr. Wemple used the unchanged historical total of IATA seats as the basis for computing TWA's increased percentage with its estimated additional transatlantic seats. This results from his premise that the additional TWA seats would have been seats transferred from and not replaced by Pan Am, decreasing Pan Am's IATA seats in the same number as TWA's increased. For 1961 through 1963, he used historical IATA seat totals increased by the number of additional transatlantic seats estimated for TWA.

The additional transatlantic flights and seats calculated by Mr. Wemple for TWA with the added and earlier B-331 jets are as follows:

"DX271B, page E-4  
(S.H.E. Report (Revised) - Volume Two)"

Table E-I

Year	C&C Report	Additional TWA Transatlantic Flights	Additional TWA Transatlantic Seats (Thousands)
(1)	(2)	(3)	(4)
1959	Chapt. II Chapt. III	None None	1 17
	Total	None	18
1960	Chapt. II Chapt. III	228 208	89 27
	Total	436	116
1961	Chapt. II	987	154
1962	Chapt. II	1,793	251
1963	Chapt. II	311	44

Sources: Col. 3: C&C Report, pp. 19 & 47  
Col. 4: C&C Report, pp. 20 & 47

Mr. Wemple's treatment of the IATA seat totals assumes that TWA could have added jet services over and above its historical levels in the 1959-1963 period without prompting a competitive response in the jet service levels of Pan Am and the IATA foreign air carriers. The history of transatlantic services contradicts this assumption. Additions to TWA's transatlantic services have always been met with increases in the transatlantic services of other carriers. The transatlantic market is the leading international air travel market in the world. It has been the object of vigorous competition throughout its history. It is inconceivable that unilateral competitive action could occur in this market without response from competing carriers.

Pan Am, in particular, has a long history of refusing to permit TWA to gain a capacity edge in the transatlantic market. It has never permitted TWA to schedule more seats annually than it has scheduled. The allocation of transatlantic seats between TWA and Pan Am has been as follows:

Table E-II

Year	TWA Seats (Thousands)	PAA Seats (Thousands)	TWA as a percentage of PAA
(1)	(2)	(3)	(4)
1953	149	195	77%
1954	172	223	78
1955	180	279	65
1956	217	343	63
1957	228	392	58
1958	276	443	62
1959	226	427	53
1960	386	537	72
1961	412	759	54
1962	529	906	58
1963	720	1,071	67
1964	825	1,186	70
1965	1,101	1,343	82
1966	1,162	1,455	80

Sources: Cols. 2 & 3: Annual Summaries of IATA statistics  
Col. 4: Col. 2 + Col. 3

The historical allocation is in striking contrast with the allocation resulting from Mr. Wemple's assumption which ignores competitive response.

Table E-III

Year	Historical IATA Seats - Transatlantic			IATA Seats Estimated by Mr. Wemple		
	TWA (Thousands)	PAA (Thousands)	TWA as a percentage of PAA	TWA (Thousands)	PAA (Thousands)	TWA as a percentage of PAA
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1959	226	427	53%	244	409	60%
1960	386	537	72	502	421	119
1961	412	759	54	566	759	75
1962	529	906	58	780	906	86
1963	720	1,071	67	764	1,071	71
1964	825	1,186	70	-	-	-

Sources: Cols. 2 through 4: Table E-II  
 Col. 5: Col. 2 of Table E-III + Col. 4 of Table E-I  
 Col. 6: Col. 3 of Table E-III. For 1959 and 1960, the historical totals are reduced by the TWA additions (Col. 4 of Table E-I)  
 Col. 7: Col. 5 ÷ Col. 6

Under Mr. Wemple's assumption Pan Am would have behaved differently in 1960 than it ever did in fact, allowing TWA to outschedule it in seats by 19%. Furthermore, TWA would have scheduled more seats in relation to Pan Am in each of the four years 1960 through 1963 than it did in 1964, a year when transatlantic demand was heavy and TWA does not claim that it was under any equipment disadvantage.

Another strange result of Mr. Wemple's assumption is that TWA would have increased its capacity by over 100%



from 1959 to 1960, a time when the industry was facing tremendous overcapacity, and then decreased its capacity in 1963, a time when the traffic market was recovering and Pan Am was adding 18% more seats.

An examination of the peak second and third quarters of each year (omitting the first and fourth quarters when TWA, PAA and other airlines observed different policies in the seasonal reduction of weekly frequencies) establishes the typical pattern of competitive response. When TWA added, Pan Am added, and the foreign flags added more than Pan Am and TWA together.

The IATA flights added by TWA, Pan Am and foreign flag carriers during the second and third quarters of the years 1960-1963 are as follows:

Table E-IV

Carrier	Flights Added - Second Quarter			
	1960	1961	1962	1963
(1)	(2)	(3)	(4)	(5)
TWA	322	381	324	294
Pan Am	229	501	670	570
Foreign Flag	988	1,579	1,738	1,567
Carrier	Flights Added - Third Quarter			
	1960	1961	1962	1963
TWA	257	232	284	182
Pan Am	439	415	720	485
Foreign Flag	1,190	1,158	1,237	1,172

Source: IATA monthly statistics



"DX271B, page E-8  
(S.H.E. Report (Revised) - Volume Two)"

The above data demonstrate the following pattern of competitive response:

Table E-V

For each flight added by TWA:	Flights Added - Second Quarter			
	1960	1961	1962	1963
(1)	(2)	(3)	(4)	(5)
Pan Am added:	.7	1.3	2.1	1.9
Foreign flag carriers added:	3.1	4.1	5.4	5.3
Flights Added - Third Quarter				
Pan Am added:	1.7	1.8	2.5	2.7
Foreign flag carriers added:	4.6	5.0	4.4	6.4

Source: Relationships among TWA, Pan Am and foreign flags from Table E-IV

(1) Competitive reaction: 1959

Since Mr. Wemple's addition of 18,000 transatlantic seats for TWA in 1959 does not result in the addition of any jet flights (Table E-I), we conservatively estimate that the foreign flag carriers would not have responded competitively with additional seats in 1959. We estimate that Pan Am would have operated the same total number of seats in 1959 which it historically operated.

The 18,000 seats which Mr. Wemple takes from Pan Am would in our opinion have been maintained by Pan Am through

(1) a transference to Pan Am's Atlantic Division of jet seats operated in other Pan Am divisions; (2) the retention of piston seats which were historically retired but which Pan Am would not have retired if it had not received additional B-331 seats; or (3) a combination of (1) and (2).

(1) To replace 18,000 seats with jet aircraft from its other divisions, Pan Am would have needed to transfer the equivalent of 0.4 aircraft.<sup>1/</sup> It is unreasonable to assume that Pan Am would not have given an equipment priority to the transatlantic market, the most important international market in the world and one where it faced intense competition. Pan Am had a reservoir of jet equipment available to it in non-transatlantic areas where it faced no jet competition. See Exhibit E-A. This reservoir was considerably greater than 0.4 aircraft.

---

<sup>1/</sup> Our calculations are as follows:

<u>227,833,000 B-321 seat miles flown</u>	{ Pan Am Atlantic Division } (Sched. T-3, 1959)
<u>1,842,297 B-321 aircraft miles flown</u>	
= 123.7 seats per B-321	

<u>18,000 seats</u>	
<u>123.7 seats per aircraft</u>	= 145.5
additional flights	

Assuming conservatively one flight per aircraft per day,

<u>145.5 flights</u>	= 0.4 aircraft
365 days	

"DX271B, page E-10  
(S.H.E. Report (Revised) - Volume Two)"

(2) If Pan Am had not received the B-331 jets which Mr. Wemple assumes went to TWA, it is also likely that it would have retired fewer piston seats in its Atlantic Division in 1959 than it historically did. Mr. Wemple's inherent assumption that Pan Am would have retired the same number of piston seats is completely unreasonable. Pan Am operated a considerable number of transatlantic piston flights throughout the period 1959-1963 in spite of the fact that TWA's transatlantic operation was wholly jet in and after 1961.

Table E-VI

	Pan Am and TWA Weekly Transatlantic Round Trips			
Months/Year	Pan Am		TWA	
	Piston	Jet	Piston	Jet
July, 1958	85	-	63	-
Dec., 1958	24	14	26	-
July, 1959	29	24	45	-
Dec., 1959	14	24	18	6
July, 1960	9	50	8	34
Dec., 1960	7	41	3	23
July, 1961	7	73	1	40
Dec., 1961	8	51	-	24
July, 1962	8	94	-	46
Dec., 1962	2	63	-	42
July, 1963	2	102	-	61

Source: Pan Am Ex. 188, Transatlantic Renewal Case,  
CAB Dkt. 13577

In July of 1958, when Pan Am operated no transatlantic jet flights, it operated 85 transatlantic piston round trips per week, or 170 weekly piston flights. In July of 1959 when it operated 48 weekly jet flights, its piston operations had declined to 58 flights per week. Thus, Pan Am deleted 2.3 piston flights for every jet flight added.<sup>1/</sup>

<sup>1/</sup> 112 piston flights deleted - 2.3 piston flights deleted  
48 jet flights added per jet flight added.

Assuming conservatively that the seating capacity of the jet aircraft was twice the seating capacity of the deleted piston aircraft, for each jet seat added, more than one piston seat was deleted. This is further borne out by the fact that Pan Am's IATA seats declined from 443,000 in 1958 to 427,000 in 1959 (Table E-II), when it was adding a substantial number of jet seats to its IATA totals. If Pan Am had not operated the 18,000 jet seats which Mr. Wemple transfers to TWA and if it had not chosen to shift at least 0.4 jet aircraft to the transatlantic from other areas, it is therefore reasonable to assume that it would have operated more transatlantic seats, not less, than it actually did.

Taking into account that Pan Am would have operated at least the number of seats it did historically, we compute TWA's percentage of IATA seats, if it had operated the additional number of transatlantic seats shown in Table E-1, as follows:



Table E-VII

1959

Actual Transatlantic Seats (Thousands)				
TWA	Pan Am	Other IATA Carriers	Total	TWA % of IATA
(1) 226	(2) 427	(3) 1,170	(4) 1,823	(5) 12.4%
Estimated Transatlantic Seats (Thousands)				
Added B-331 Aircraft (C & C Report, Chapter II)				
(6) 227	(7) 427	(8) 1,170	(9) 1,824	(10) 12.4%
Earlier Delivery of B-331 Aircraft (C & C Report, Chapter III)				
(11) 244	(12) 427	(13) 1,170	(14) 1,841	(15) 13.3%

Sources: Cols. 1 through 5: C & C Report, p. 23  
 Col. 6: Table E-I + Col. 1  
 Cols. 7 and 8: C & C Report, p. 23  
 Col. 9: Sum of Cols. 6, 7, and 8  
 Col. 10: Col. 6 ÷ Col. 9  
 Col. 11: Table E-I + Col. 6  
 Cols. 12 and 13: C & C Report, p. 23  
 Col. 14: Sum of Cols. 11, 12, and 13  
 Col. 15: Col. 11 ÷ Col. 14

"DX271B, page E-14  
(S.H.E. Report (Revised) - Volume Two)"

(11) Competitive reaction: 1960-1963

In 1960, Pan Am and the foreign carriers had more than sufficient jet equipment operating on non-transatlantic segments where they faced no jet competition to allow them to substitute piston aircraft services for the services operated with jets on these segments and to redistribute jet equipment into the transatlantic market to meet TWA's assumed additional flights. See Exhibits E-A and E-B.

In addition to jet equipment available in non-transatlantic service, the foreign carriers also had the option of increasing the low utilization at which they were operating their transatlantic jet equipment, producing more transatlantic flights and seats with their existing aircraft. In 1960, BOAC operated its B-707 equipment at an average utilization of four hours and 49 minutes per day and Air France operated its B-707 equipment an average four hours and 41 minutes per day.<sup>1/</sup> In contrast, TWA operated its B-331 aircraft in its International Division at an average utilization of nine hours and 44 minutes per day.<sup>2/</sup>

---

<sup>1/</sup> Source: ICAO Fleet Statistics, 1960

<sup>2/</sup> Source: TWA Ex. C & C-4(39)

For the 1961-1963 period, in addition to redistributing jet equipment available to them in their non-transatlantic services, Pan Am and the foreign carriers could have, and, in our opinion probably would have, acquired whatever new jet equipment was needed by the spring of 1961 to maintain their competitive positions in the transatlantic market. Although the history of competitive response in that market shows that the additional transatlantic flights offered by TWA were met by an addition of a greater number of flights by Pan Am and a still greater number of flights by the foreign carriers (Table E-V), we have conservatively estimated for purposes of our Report that for the years 1960-1963 Pan Am would have added only one flight over and above its historical flights for each assumed additional TWA flight. We have also estimated that the foreign carriers, taken as a group, would have responded competitively to TWA and Pan Am by adding only one additional flight for each two flights added by these carriers (one by TWA and one by Pan Am).

For the years 1960 and 1961, Mr. Wemple assumed that TWA would have added transatlantic seats through the replacement of existing piston flights with jet flights as well as seats generated by additional jet flights. We have not allowed for any competitive reaction to the assumed additional seats generated by replacement flights, although it is our opinion that any addition of transatlantic seats by TWA without a responding increase in the seats of competing carriers is unlikely.

Using the foregoing assumptions as to competitive reaction, we have estimated the number of additional transatlantic flights and seats which would have been operated by Pan American and the foreign carriers, if TWA had operated the additional transatlantic flights and seats shown in Table E-I.

Table E-VIII

Additional B-331 Aircraft  
(C & C Report, Chapter II)

Year (1)	Flights Added			Seats Added (Thousands)					Total Added	
	TWA (2)	Pan Am (3)	Other IATA Carriers (4)	TWA		Pan Am (7)	Other IATA Carriers (8)	Flights (9)	Seats (Thousands) (10)	
				From Added Flights (5)	From Replace- ment Flights (6)					
1960	228	228	228	29.8	59.3	29.8	29.8	684	148.7	
1961	987	987	987	134.4	19.9	134.4	134.4	2,961	423.1	
1962	1,793	1,793	1,793	251.0	-	251.0	251.0	5,379	753.0	
1963	311	311	311	44.0	-	44.0	44.0	933	132.0	

Earlier Delivery of B-331 Aircraft  
(C & C Report, Chapter III)

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1960	208	208	208	27.0	-	27.0	27.0	624	81

## Sources:

- Col. 2: Table E-I  
 Cols. 3 and 4: Estimated competitive reaction  
 Col. 5: C & C Report, p. 19  
 Col. 6: C & C Report, p. 20  
 Cols. 7 and 8: Estimated additional flights flown with jet aircraft of same seating configuration as TWA's additional aircraft - Col. 5  
 Col. 9: Sum of Cols. 2, 3, and 4  
 Col. 10: Sum of Cols. 5, 6, 7, and 8  
 Col. 11: C & C Report, p. 47  
 Cols. 12 and 13: Estimated competitive reaction  
 Cols. 14 and 15: C & C Report, p. 47  
 Cols. 16 and 17: Estimated additional flights flown with jet aircraft of same seating configuration as TWA's additional aircraft - Col. 14  
 Col. 18: Sum of Cols. 11, 12, and 13  
 Col. 19: Sum of Cols. 14, 16, and 17



We have computed TWA's percentage of IATA seats, based upon the additional TWA and IATA seats shown in Table E-VIII, as follows:

Table E-IX

Actual Transatlantic Seats (Thousands)					
Year	TWA	Pan Am	Other IATA Carriers	Total	TWA % of IATA
(1)	(2)	(3)	(4)	(5)	(6)
1960	386	537	1,490	2,413	16.0%
1961	412	759	2,115	3,286	12.5
1962	529	906	2,456	3,891	13.6
1963	720	1,071	2,666	4,457	16.2
Estimated Transatlantic Seats (Thousands)					
Added B-331 Aircraft (C & C Report, Chapter II)					
	(7)	(8)	(9)	(10)	(11)
1960	475	567	1,520	2,562	18.5%
1961	566	891	2,249	3,706	15.3
1962	780	1,157	2,707	4,644	16.8
1963	764	1,115	2,710	4,589	16.6
Earlier Delivery of B-331 Aircraft (C & C Report, Chapter III)					
	(12)	(13)	(14)	(15)	(16)
1960	502	594	1,547	2,643	19.0%

Sources: Cols. 2 through 6: C & C Report, p. 23  
 Col. 7: Col. 2 plus Cols. 5 and 6 of Table E-VIII  
 Col. 8: Col. 3 plus Col. 7 of Table E-VIII  
 Col. 9: Col. 4 plus Col. 8 of Table E-VIII  
 Col. 10: Sum of Cols. 7, 8  
 Col. 11: Col. 7 + Col. 10  
 Col. 12: Col. 7 plus Col. 14 of Table E-VIII  
 Col. 13: Col. 8 plus Col. 16 of Table E-VIII  
 Col. 14: Col. 9 plus Col. 17 of Table E-VIII  
 Col. 15: Sum of Cols. 12, 13 and 14  
 Col. 16: Col. 12 + Col. 15

c. Increase in TWA's transatlantic passengers

Quite apart from Mr. Wemple's error in assuming that Pan Am and the foreign carriers would have allowed TWA to increase its share of transatlantic capacity without a vigorous competitive reaction, he commits the more flagrant error of assuming that all of the available transatlantic traffic would be subject to redistribution on the sole basis of TWA's added share of seats. This is not so. At least one category of traffic which moved in volume on the services of U.S. flag carriers was not susceptible to redistribution on the basis of a change in TWA's share of IATA seats. This is the A and Z traffic -- military and dependent traffic which moves under special contractual arrangements and in accordance with the policies of the U.S. Department of Defense.

Category A and Z traffic is carried on scheduled transatlantic flights of the U.S. flag carriers only. Unlike charter traffic, which flies in nonscheduled traffic, is included in the reported IATA passenger totals for TWA and Pan Am in 1961, when it was initiated, and in subsequent years.

It is extremely doubtful that TWA could have increased its A and Z passengers in 1961-1963 no matter how many assumed additional seats it had because

(1) A and Z traffic did not move on foreign carriers and TWA could not have attracted additional A and Z traffic from them, and (2) the apparent policy of the Department of Defense was to divide Category A and Z traffic equally between TWA and Pan Am<sup>1/</sup> without regard to the relative volume of transatlantic seats operated by each.

By assuming that TWA would have increased its historical IATA passengers in relation to its assumed additional seats without considering the special arrangements and policies with respect to the division of Category A and Z traffic, Mr. Wemple has overstated his estimate of TWA's additional IATA passengers. In using TWA's estimated percentage share of available IATA seats as the guide to its percentage share of available IATA traffic, we have likewise overstated our estimate of its share of IATA traffic.

Using our estimates of TWA's increased share of IATA seats shown in Table E-IX as a guide, without adjustment for Category A and Z traffic, we have estimated the additional number of TWA's transatlantic passengers and the resulting percentage increase over its historical passengers as follows:

---

<sup>1/</sup> In this connection see Pan Am Ex. 117 and 445, Transatlantic Renewal case, CAB Dkt. No. 13577.

Table E-X

Added B-331 Aircraft (C & C Report, Chapter II)						
Year	Actual TWA Share of IATA Seats (Percent)	Estimated TWA Share of IATA Seats	Actual IATA Passengers (Thousands)		Actual TWA Share of IATA Passengers (Percent)	Estimated TWA Share of IATA Passengers (Percent)
			TWA	Total		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1959	12.4%	12.4%	146	1,204	12.1%	12.1%
1960	16.0	18.5	243	1,534	15.8	18.3
1961	12.5	15.3	208	1,654	12.6	15.4
1962	13.6	16.8	277	1,981	14.0	17.3
1963	16.2	16.6	359	2,165	16.6	17.0
Estimated TWA Transatlantic Passengers (Thousands)		Estimated Additional TWA Transatlantic Passengers (Thousands)		Estimated TWA Percentage Increase in Transatlantic Passengers		
(8)		(9)		(10)		
146		---		----		
280		37		15.2%		
255		47		22.6		
343		66		23.8		
368		9		2.5		

Sources: Cols. 2 and 3: Table E-VII and Table E-IX  
 Cols. 4, 5 and 6: C & C Report, p. 21  
 Col. 7: Col. 3 + Col. 2 x Col. 6  
 Col. 8: Col. 7 x Col. 5  
 Col. 9: Col. 8-Col. 4  
 Col. 10: Col. 9 + Col. 4

"DX271B, page E-22  
(S.H.E. Report (Revised) - Volume Two)"

Table E-XI

## Earlier Delivery of B-331 Aircraft

Year	Estimated TWA Share of IATA Seats (Chap. II)	Estimated TWA Share of IATA Seats (Chap. III)	IATA Passengers (Thousands)		Estimated TWA Share of IATA Passengers (Chap. II)	Estimated TWA Share of IATA Passengers (Chap. III)
			TWA Est. (Chap. II)	Actual Total		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1959	12.4%	13.3%	146	1,204	12.1%	13.0%
1960	18.5	19.0	280	1,534	18.3	18.8
Year	Estimated TWA Transatlantic Passengers (Thousands)		Estimated Additional TWA Transatlantic Passengers (Thousands)		TWA Percentage Increase in IATA Passengers	
	(8)		(9)		(10)	
1959	157		11		7.5%	
1960	288		8		2.9	

Sources: Col. 2: Col. 3 of Table E-X  
 Col. 3: Tables E-VII and E-IX  
 Col. 4: Col. 8 of Table E-X  
 Col. 5: Col. 5 of Table E-X  
 Col. 6: Col. 7 of Table E-X  
 Col. 7: Col. 3 + Col. 2 x Col. 6  
 Col. 8: Col. 7 x Col. 5  
 Col. 9: Col. 8 - Col. 4  
 Col. 10: Col. 9 + Col. 4



## 2. International Division Revenues.

Mr. Wemple assumed that TWA's total International Division passenger revenues would have increased in the same percentage as the percentage increase he estimated for TWA's IATA passengers. This assumption is incorrect. TWA's International Division passenger revenues have not grown in the same proportion as TWA's IATA passengers, nor could they be reasonably expected to. The historical relationship between TWA's IATA passengers and its International Division revenues is as follows:

Table E-XII

Year	TWA Transatlantic Passengers (Thousands)	TWA International Division Passenger Revenues (Millions)
(1)	(2)	(3)
1958	160	\$ 61.9
1959	146	59.5
1960	243	82.0
1961	208	63.9
1962	277	77.5
1963	359	105.0
1964	488	127.2
1965	638	158.5

Sources: Col. 2: C & C Report, p. 21 for 1958-1963; IATA Reports  
Col. 3: C & C Report, p. 27 for 1959-1963; CAB Handbook of Airline Statistics, 1965 ed.

Contrary to Mr. Wemple's assumption that a percentage increase in TWA transatlantic passengers would have been matched by a like percentage increase in TWA International Division passenger revenues, TWA's actual experience, whether measured over the period 1958-1965 or over the period 1959-1963, shows that its International Division passenger revenues increased at only 52<sup>1</sup>/<sub>2</sub>% of the rate of increase of its IATA passengers.

The source of the error in Mr. Wemple's assumption is that in increasing TWA's total International Division passenger revenues, he estimated that traffic using TWA's services abroad but not across the Atlantic (beyond-the-gateway passengers) and TWA's charter passengers would increase in the same percentage as TWA's transatlantic (IATA) passengers. He obviously did not test this assumption, since it is not difficult to ascertain that the behavior of TWA's beyond-the-gateway and charter traffic was independent of its transatlantic services and traffic.

---

1/ 1958-1965 calculations: - 638 passengers - 160 passengers + 160 passengers = 298.8%  
\$158.5 - \$61.9 + \$61.9 = 156.1%  
156.1% + 298.8% = 52%  
1959-1963 calculations: 359 passengers - 146 passengers + 146 passengers = 145.9%  
\$105.0 - \$59.5 + \$59.5 = 76.5%  
76.5% + 145.9% = 52%

It is our opinion, for the reasons developed below, that TWA's beyond-the-gateway charter passengers would not have been increased in the 1959-1963 period by addition of transatlantic seats.

a. Beyond-the-gateway

(1) Beyond-the-gateway passengers

The actual annual numbers of TWA's beyond-the-gateway passengers in the period 1958-1965 were as follows:

Table E-XIII

Year	Total International Division Scheduled Passenger Originations (Thousands)	Transatlantic Scheduled Passengers (Thousands)	Beyond-The-Gateway Scheduled Passengers (Thousands)
(1)	(2)	(3)	(4)
1958	274	160	114
1959	245	146	99
1960	348	243	105
1961	284	208	76
1962	365	277	88
1963	509	359	150
1964	596	488	108
1965	751	638	113

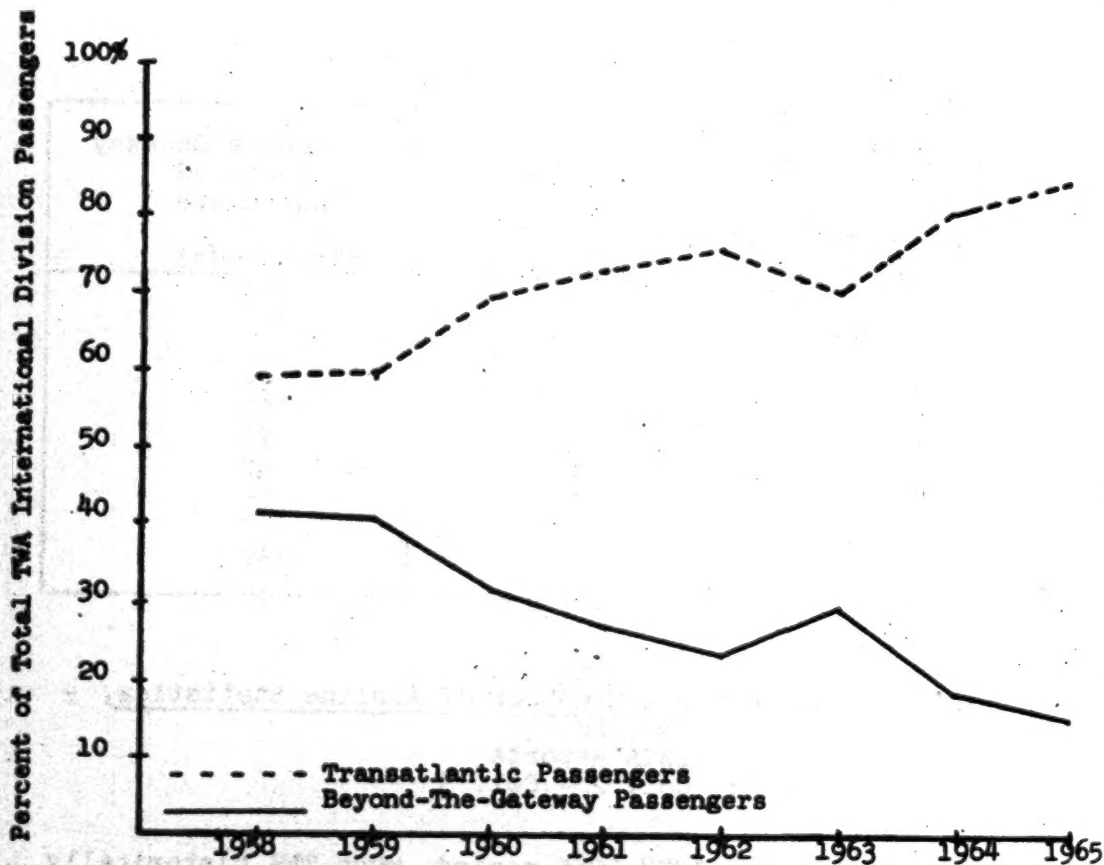
Sources: Col. 2: CAB Handbook of Airline Statistics, 1965 Ed.

Col. 3: IATA Reports

Col. 4: Col. 2 - Col. 3

During the 1958-1965 period, when TWA historically added a substantial number of jets to its international operations and its transatlantic traffic was steadily increasing, its beyond-the-gateway passengers represented a steadily declining share of its total International Division scheduled passengers.

Chart E-I



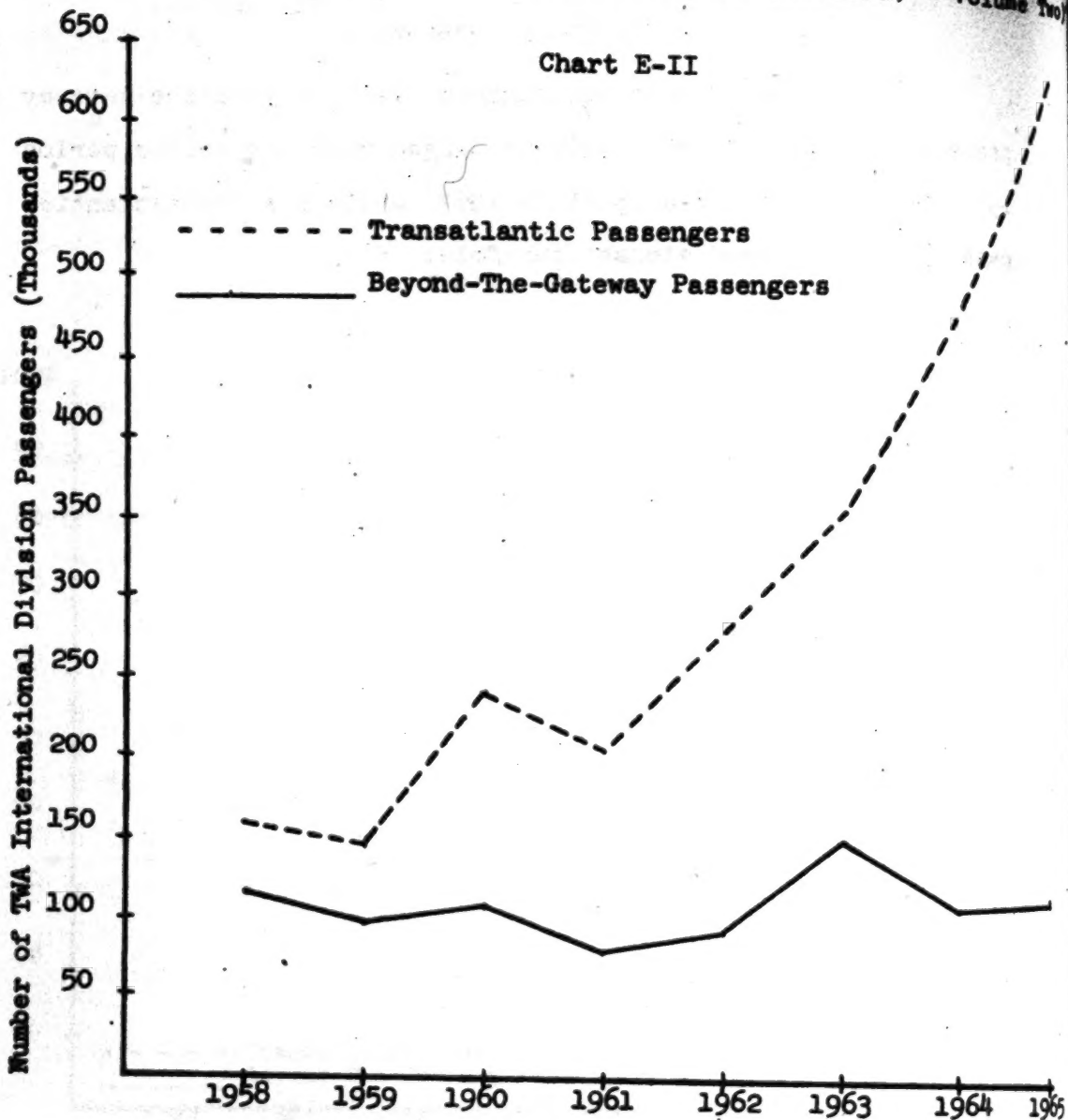
Percent of Total TWA International Division Passengers								
Category	1958	1959	1960	1961	1962	1963	1964	1965
Transatlantic Passengers	58.4%	59.6%	69.8%	73.2%	75.9%	70.5%	81.9%	85.0%
Beyond-The-Gateway Passengers	41.6	40.4	30.2	26.8	24.1	29.5	18.1	15.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Table E-XIII



In terms of absolute numbers, TWA's beyond-the-gateway passengers remained relatively unchanged over the entire period 1958-1965, except for a spurt in 1963, while its transatlantic passengers increased almost four-fold:

Chart E-II



Source: Table E-XIII

"DX271B, page E-30  
(S.H.E. Report (Revised) - Volume Two)"

In order to determine the cause of the rise in beyond-the-gateway passengers in 1963, we analyzed TWA's passenger originations, as reported to the CAB,<sup>1/</sup> at its foreign terminals during the period 1962-1964. We found that substantially all of the 1963 increase and the subsequent 1964 decrease in beyond-the-gateway passengers resulted from increases and decreases in originations at Rome and at cities linked to Rome by TWA single-plane services. In our opinion, the rise in beyond-the-gateway traffic in 1963 is attributable to the increase in Rome traffic occasioned by the funeral of Pope John XXIII and the election and coronation of Pope Paul VI. The downward trend in 1964 and the virtual stagnation of TWA's beyond-the-gateway traffic in 1965 -- both years in which its transatlantic traffic increased substantially -- confirm the trend from 1958 to 1962, indicating that beyond-the-gateway traffic did not change and could not be expected to change in proportion to transatlantic traffic.

The long-range trend in beyond-the-gateway passengers appears to have been material to TWA in its actual jet planning. Both TWA and C&C recognized that because of the limited traffic potential, TWA could not expect growth in that market comparable

---

<sup>1/</sup> TWA Ex. C&C-4(40).

to that which would be possible in the TWA transatlantic market. <sup>1/</sup>

(ii) Beyond-the-gateway passenger revenues

No CAB data, IATA data or TWA material available to us provides a breakdown, between transatlantic and beyond-the-gateway, of TWA's International Division scheduled passenger revenues. We therefore found it necessary to estimate the beyond-the-gateway passenger revenues by first determining the number of TWA beyond-the-gateway scheduled revenue passenger miles and then applying an appropriate beyond-the-gateway yield to these miles.

Although there are no published data available which directly shows TWA's beyond-the-gateway scheduled revenue passenger miles, we have estimated them from available data.

In the Transatlantic Renewal Case, TWA presented to the CAB a study, based on its internal records, showing that in 1962 it carried 278,436 transatlantic scheduled revenue passengers a total of 1,059,032,000 passenger miles. <sup>2/</sup> Dividing passenger miles by passengers gives

---

<sup>1/</sup> Source: DX 15, p. 15-16;  
DX 62, p. IV-14.

<sup>2/</sup> TWA Ex. 2, 122, and 124, Transatlantic Renewal Case, CAB Dkt. 13577.

an average length of haul of 3,804 miles per transatlantic passenger. We applied this average length of haul to TWA's transatlantic passengers in 1959-1963 to determine the 1959-1963 transatlantic scheduled revenue passenger miles. By subtracting these revenue passenger miles from the total TWA International Division scheduled revenue passenger miles (as reported to the CAB), we have determined TWA's beyond-the-gateway scheduled revenue passenger miles, as follows:

Table E-XIV

Year	Int'l Division Revenue Passengers (Thousands)	Trans- atlantic Revenue Passengers (Thousands)	Beyond- the-Gateway Revenue Passengers (Thousands)	Int'l Div. Rev. Passenger Miles (Millions)	Trans- atlantic Rev. Passen- ger Miles (Millions)	Beyond- the-Gateway Rev. Passen- ger Miles (Millions)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1959	245	146	99	672.8	555.4	117.4
1960	348	243	105	1,039.2	924.4	114.8
1961	284	208	76	904.5	791.2	113.3
1962	365	277	88	1,194.1	1,059.0	135.1
1963	509	359	150	1,564.1	1,365.6	198.5

Sources: Col. 2: CAB Handbook of Airline Statistics, 1965 Ed.  
Col. 3: C & C Report, p. 21  
Col. 4: Col. 2 - Col. 3  
Col. 5: CAB Handbook of Airline Statistics, 1965 Ed.  
Col. 6: Col. 3 x 3,804 (average haul per passenger)  
(1962 figure from TWA Ex. 124,  
Transatlantic Renewal Case,  
CAB Dkt. No. 13577)  
Col. 7: Col. 5 - Col. 6



We have analyzed fares for TWA's beyond-the-gateway segments and found that a substantially higher fare level per mile exists over these segments than in either TWA's transatlantic market or its domestic market. When fares in this market are averaged, a fare level of about 10¢ per passenger mile is indicated. Application of a discount of 10% to reflect experienced dilution in yields from reduced-fare passengers results in an average yield of about 9¢ per passenger mile in TWA's beyond-the-gateway services.

We have also examined the experience of European airlines during the 1959-1963 period and found that they realized an average yield of 8¢ per passenger mile of intra-European traffic.<sup>1/</sup> While European airlines specializing in local services would generally, in our opinion, experience lower yields than the more direct services of a trunkline carrier like TWA, we have applied the lower yield figure of 8¢ per passenger mile to estimate TWA's beyond-the-gateway passenger revenues, as follows:

---

<sup>1/</sup> European Airline Research Bureau Statistics, Report RB-1, May 5, 1967; European Airline Research Bureau Report to the European Civil Aviation Conference, April 27, 1964 (kilometers converted to miles at the rate of 1.6093 kilometers per mile).

Table E-XV

Year	TWA Beyond-the-Gateway Passenger Revenues (Millions)
(1)	(2)
1959	\$ 9.4
1960	9.2
1961	9.1
1962	10.8
1963	15.9

Source: Col. 7 of Table E-XIV  
multiplied by 8¢ average  
yield per revenue pass-  
enger mile

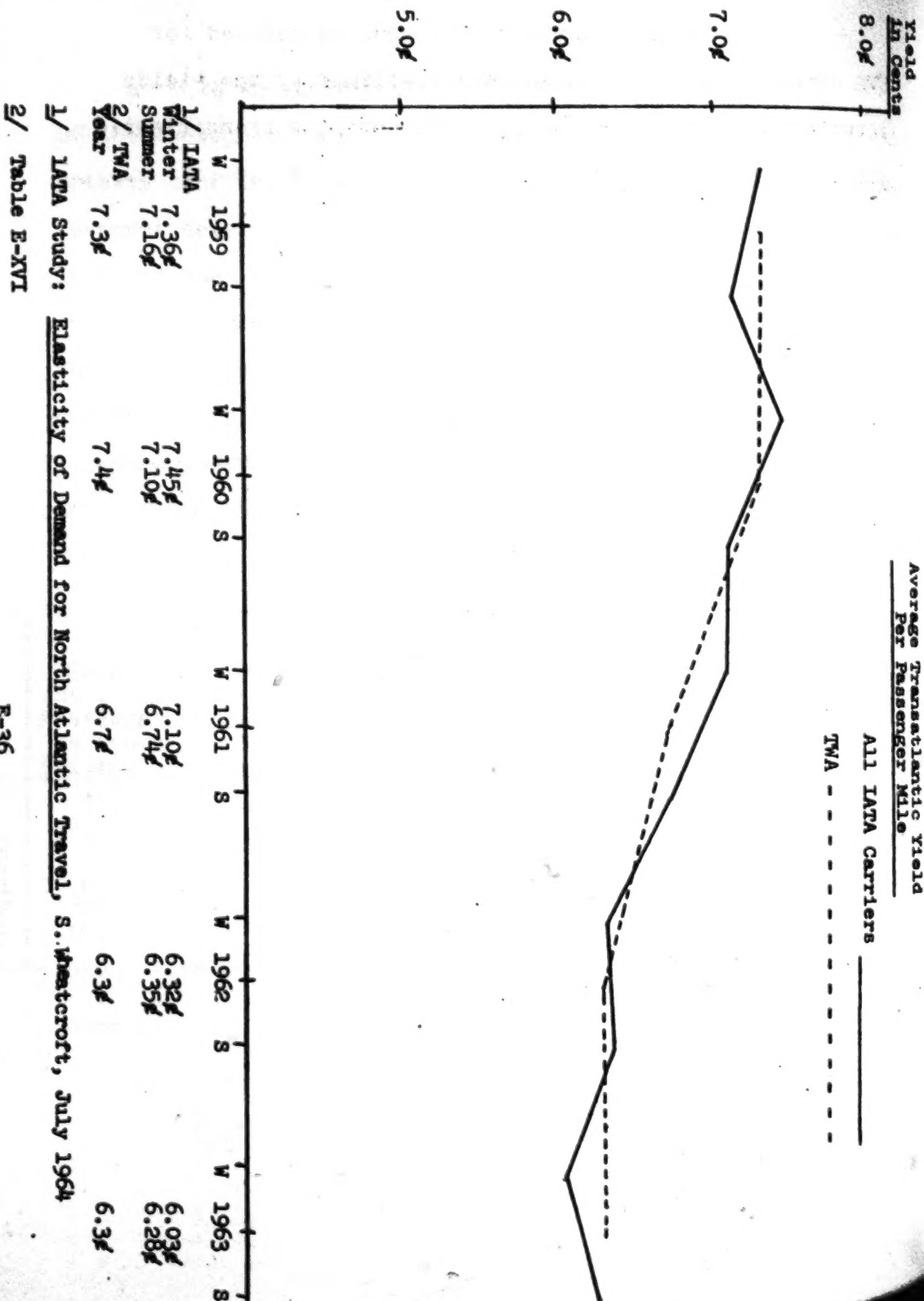
As an additional check on the appropriateness of the average yield of 8¢ applied to TWA's beyond-the-gateway traffic, we subtracted the beyond-the-gateway revenues determined on this basis from the total TWA International Division scheduled passenger revenues as reported to the CAB, giving TWA's imputed transatlantic passenger revenues. Dividing these revenues by TWA's transatlantic revenue passenger miles produced transatlantic yield ranging from 7.4¢ in 1960 down to 6.3¢ in 1962 and 1963:

Table E-XVI

Year	Total Int'l Div. Passenger Revenues (Millions)	Beyond-the- Gateway Passen- ger Revenues Based on 8¢ Yield (Millions)	Trans- atlantic Passenger Revenues (Millions)	Trans- atlantic Revenue Passenger Miles (Millions)	Yield Per Trans- atlantic Revenue Pas- senger Mile
(1)	(2)	(3)	(4)	(5)	(6)
1959	\$ 50.2	\$ 9.4	\$ 40.8	\$ 555.4	7.3¢
1960	77.6	9.2	68.4	924.4	7.4
1961	61.9	9.1	52.8	791.2	6.7
1962	77.0	10.8	66.2	1,059.0	6.3
1963	101.4	15.9	85.5	1,365.6	6.3

Sources: Col. 2: CAB Handbook of Airline Statistics, 1965 Ed.  
 Col. 3: Table E-XV  
 Col. 4: Col. 2 - Col. 3  
 Col. 5: Col. 6 of Table E-XIV  
 Col. 6: Col. 4 ÷ Col. 5

The transatlantic yields thus calculated for TWA compare closely with and are confirmed by the yields reported in a recent study for IATA covering transatlantic yields of all IATA carriers:





"DX271B, page E-38  
(S.H.E. Report (Revised) - Volume Two)"

Mr. Wemple, by erroneously increasing TWA's beyond-the-gateway passenger revenues by his estimated percentage increase in TWA transatlantic passengers, has overstated TWA's additional International Division revenues by \$10.4 million in C & C Report, Chapter II and by \$1.4 million in C & C Report, Chapter III. This results in a total overstatement of \$11.8 million even without correction of his overestimate of TWA's added transatlantic passengers. In our opinion, no increase in beyond-the-gateway revenues would have occurred.

Table E-XVII

C & C Report, Chapter II			
Year	Actual Beyond- the-Gateway Revenues (Computed) (Millions)	Percent of Increase Estimated by Mr. Wemple	Amount of Increase Estimated by Mr. Wemple (Millions)
(1)	(2)	(3)	(4)
1959	\$ 9.4	1%	\$ .0
1960	9.2	23	2.1
1961	9.1	32	2.9
1962	10.8	38	4.1
1963	15.9	5	.8
			Total \$ 9.9 Million
			5% added for <u>1/</u> cargo revenue <u>.5</u>
			Total Increase \$10.4 Million
C & C Report, Chapter III			
1959	9.4	7	.7
1960	9.2	6	.6
			Total \$ 1.3
			5% added for <u>1/</u> cargo revenue <u>.1</u>
			Total Increase \$ 1.4 Million

Sources: Col. 2: Table E-XV  
 Col. 3: C & C Report, pp. 27, 47-48  
 Col. 4: Col. 2 x Col. 3

1/ C & C Report, pp. 31-33, 48

b. Charter

The methodology adopted by Mr. Wemple assumes that an increase in TWA's scheduled transatlantic (IATA) passengers in the period 1959-1963 would have occasioned an increase by the same percentage in TWA's international charter passenger revenues. TWA's transatlantic and charter statistics for 1959-1963 show that this assumption is erroneous because historically its international charter operations during this period were not related to its scheduled transatlantic capacity or traffic.

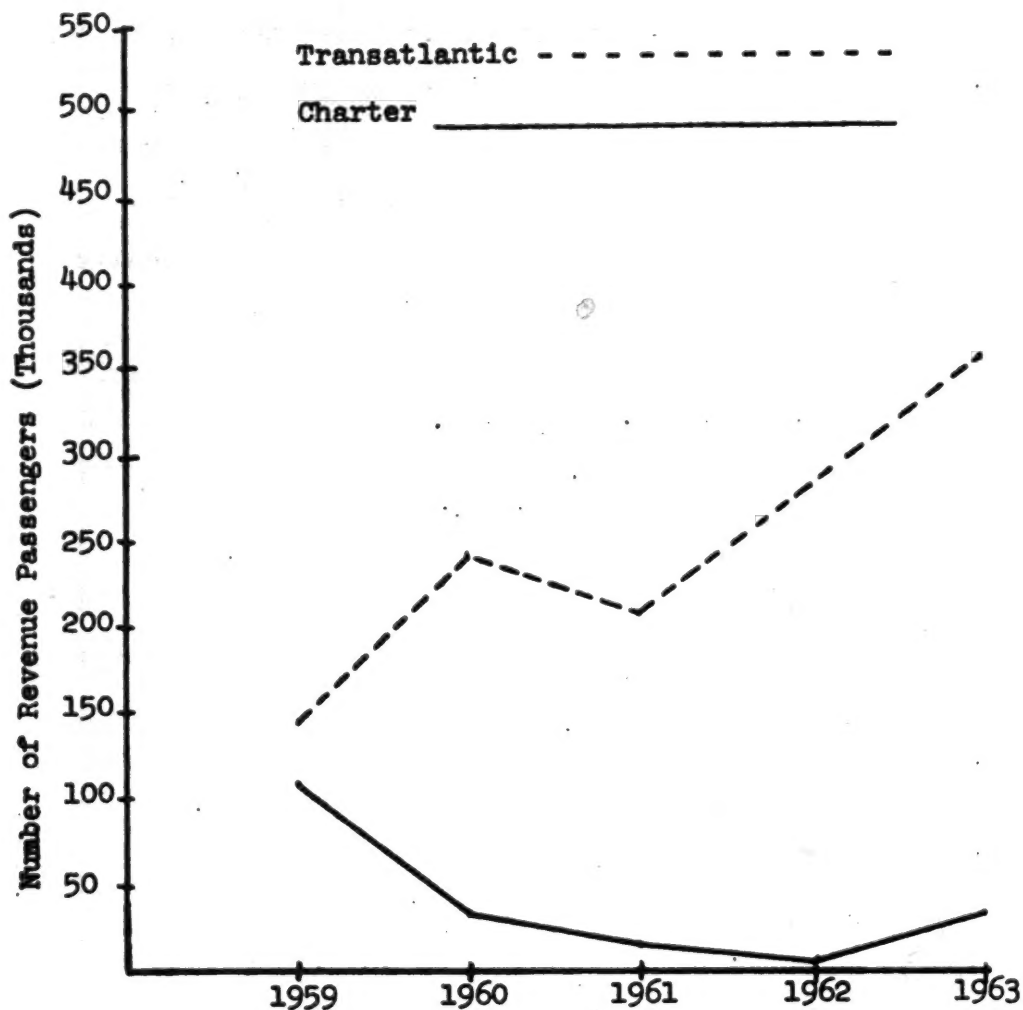
The number of IATA and charter passengers flown in its International Division in 1959-1963 were as follows:

Table E-XVIII

Year	IATA Passengers (Thousands)	Charter Passengers (Thousands)
(1)	(2)	(3)
1959	146	103
1960	243	35
1961	208	18
1962	277	4
1963	359	29

Sources: Col. 2: C & C Report, p. 21  
Col. 3: CAB Handbook of Airline Statistics, 1965 Ed.

Chart E-IV



TWA's International Division passenger revenues  
and charter passenger revenues were as follows:

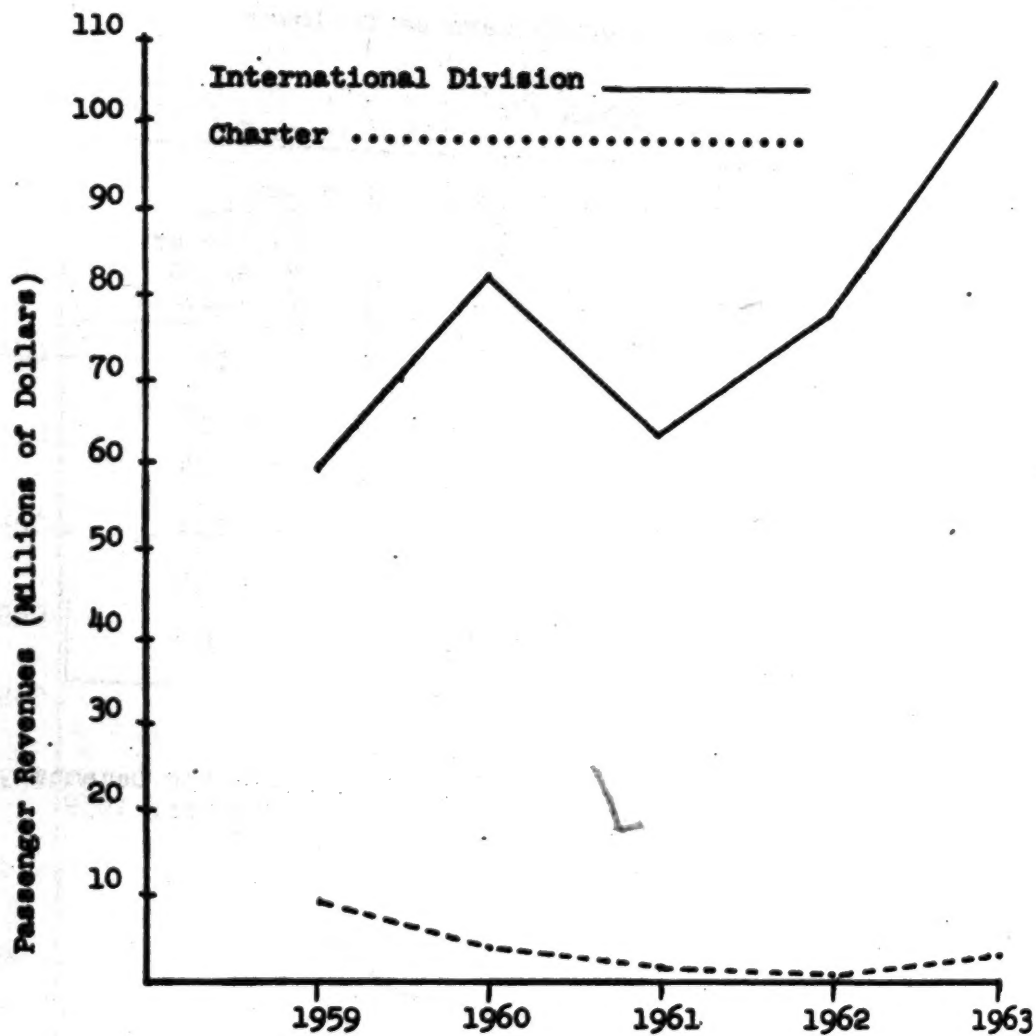
Table XIX

Year	International Division Passenger Revenues (Millions)	Charter Passenger Revenues (Millions)
(1)	(2)	(3)
1959	\$ 59.5	\$ 9.3
1960	82.0	4.4
1961	63.9	2.1
1962	77.5	.5
1963	105.0	3.5

Sources: Col. 2: C & C Report, p. 27  
Col. 3: TWA Ex. C & C-2, Schd. 2-2M for December, 1959-  
1963, Schd. 2-163M for December, 1959.



Chart E-V



"DX271B, page E-44  
(S.H.E. Report (Revised) - Volume Two)"

It can be seen that during the period 1959-1963 when TWA historically added a substantial number of jets to its international operations and experienced a strong growth in its scheduled transatlantic services, its international charter passengers and revenues did not increase, as Mr. Wemple assumes in his estimating, but actually suffered a decline.

Mr. Wemple, by erroneously increasing TWA charter passenger revenues by the same percent of increase he estimated for TWA's IATA passengers, has overstated TWA's additional International Division revenues by \$2.3 million in Chapter II of the C & C Report and by \$1.1 million in Chapter III. This results in a total overstatement of \$3.4 million, apart from his overstatement of beyond-the-gateway revenues and without correction of his overestimate of TWA's added transatlantic passengers. In our opinion, no increase in charter revenues would have occurred.

C & C Report, Chapter II			
Year	Charter Passenger Revenues (Millions)	Percent of Increase Estimated by Mr. Wemple	Amount of Increase (Millions)
(1)	(2)	(3)	(4)
1959	\$ 9.3	1%	\$ 0.1
1960	4.4	23%	1.0
1961	2.1	32%	0.7
1962	.5	38%	0.2
1963	3.5	5%	0.2
Total - 2.2			
5% added for cargo revenue <u>.1</u>			
Total Increase \$ 2.3 Million			

C & C Report, Chapter III			
Year	Charter Passenger Revenues (Millions)	Percent of Increase Estimated by Mr. Wemple	Amount of Increase (Millions)
(1)	(2)	(3)	(4)
1959	\$ 9.3	7%	\$ 0.7
1960	4.4	6%	0.3
Total - 1.0			
5% added for cargo revenue <u>.1</u>			
Total Increase \$1.1 Million			

Sources: Col. 2: TWA Ex. C & C -2, Sched. 2-2M for December 1959-1963, Sched. 2-163M for December, 1959.

Col. 3: C & C Report, pp. 27, 47-48

Col. 4: Col. 2 & Col. 3

"DX271B, page E-A-1  
(S.H.E. Report (Revised) - Volume Two)"

## EXHIBIT E-A

PAN AMERICAN JET AIRCRAFT

Pan Am had the following jet aircraft available in its system and Atlantic Division in the 1959-1962 period:

System				Atlantic Division		
Date	B-121	B-321	DC-8	B-121	B-321	DC-8
(1) June 1959	(2) 6	(3) -	(4) -	(5) 6	(6) -	(7) -
Dec. 1959	6	15	-	3	10	-
June 1960	6	23	9	-	13	9
Dec. 1960	6	23	17	-	9	12
June 1961	6	26	20	-	11	14
Dec. 1961	6	26	20	-	11	12
June 1962	6	31	21	1	16	13

Source: Pan Am. Ex. 19, Transatlantic Renewal Case,  
Dkt. 13577

In the period 1959-1960, Pan Am operated the following non-transatlantic flight segments with jet aircraft where it faced no competitive jet aircraft:

Pan Am Division	Month/Year	Segments	Flight Number	Operations Per Week	Miles Flown
Pacific	Oct. 1959	Los Angeles-Honolulu-Tokyo	831	2	5,477
		San Francisco-Honolulu-Tokyo	851	2	5,149
		San Francisco-Honolulu	1	5	2,396
		Los Angeles-Honolulu	821	5	2,553
		Seattle-Portland-Honolulu	891	2	2,676
	Jan. 1960	San Francisco-Honolulu-Tokyo-Hong Kong	1	4	6,900
		San Francisco-Honolulu	865	2	2,396
		San Francisco-Honolulu	1	3	2,396
		Los Angeles-Honolulu	813	1	2,553
		Los Angeles-Honolulu	811	7	2,553
		Seattle-Portland-Honolulu	891	3	2,676
	April 1960	Honolulu-Tokyo-Hong Kong	1	4	5,541
		Honolulu-Tokyo	1	3	3,848
		Seattle-Portland-Honolulu	891	4	2,676
		Seattle-Fairbanks	901	4	1,530
	July 1960	Honolulu-Wake Island-Tokyo-Hong Kong	1	5	5,541
		Honolulu-Wake Island-Tokyo	1	1	3,848
		San Francisco-Tokyo	1/845	1	5,149
		Seattle-Portland-Honolulu	891	4	2,676
		Seattle-Fairbanks	901	4	1,530
	Oct. 1960	Honolulu-Guam-Manila-Saigon-Singapore-Djakarta	817	1	6,708
		Honolulu-Guam-Manila-Hong Kong	817	1	5,541
		Seattle-Portland-Honolulu	891	3	2,676
		Seattle-Honolulu	891	1	2,676
		Seattle-Fairbanks	901	4	1,530



Month/Year	Segments	Flight No.	Operations per week	Miles per flt.	
Dec. 1959	Miami-San Juan	451	7	1,045	
	New York-San Juan	211	7	1,605	
	New York-Nassau	205	3	1,101	
	New York-Ciudad Trujillo	227/428	2	1,557	
	Ciudad Trujillo-Montego Bay	227/428	2	541	
	Miami-Montego Bay	427	2	526	
	Montego Bay-Ciudad Trujillo	427	2	541	
	Jan. 1960	Miami-San Juan	451	7	1045
		New York-Port Au Prince	227/428	2	1557
Port Au Prince-Montego Bay		227/428	2	366	
Miami-Montego Bay		427	2	526	
Montego Bay-Port-Au Prince		427(2), 429(2)	4	366	
New York-San Juan		211(7), 221(2), 223(2)	11	1605	
New York-Nassau		205(3), 409(2)	5	1101	
New York-Bermuda		132	2	764	
Apr. 1960		Miami-San Juan	451	7	1045
		New York-Ciudad Trujillo	227	3	1557
		New York-San Juan	229(1), 211(7), 271(3)	13	1605
		San Juan-Ciudad Trujillo	229	1	255
		New York-Bermuda	132	2	764
July 1960		New York-San Juan	211(7), 251(3), 215(7)	17	1605
		Miami-San Juan	451	7	1045
		Miami-Montego Bay	427	2	526
		Montego Bay-Ciudad Trujillo	427	2	541
		New York-Ciudad Trujillo	227	2	1557
		Ciudad Trujillo-Montego Bay	227	2	541
		Philadelphia-Wash.	213	2	135
		Washington-San Juan	213	2	1568
		New York-Nassau	205	3	1101
		Boston-Baltimore	219	1	369
		Baltimore-San Juan	219	1	1571
	New York-Bermuda	132	7	764	

AX-1956

"DX271B, page E-A-4  
(S.H.E. Report (Revised) - Volume Two)"

Pan.Am. Division	Month/Year	Segments	Flight No.	Operations per Week	Miles per flt.
	Oct.1960	Miami-San Juan	451	7	1045
		Montego Bay-Ciudad Trujillo	427	2	541
		Boston-Baltimore	219	1	369
		Baltimore-San Juan	219(1),213(2)	3	1571
		Philadelphia- Baltimore	213	2	91

AA-1937  
"DX271B, page E-A-5  
(S.H.E. Report (Revised) - Volume Two)"

Month/Year	Segments	Flight No.	Operations per Week	Miles per flt
Jan. 1959	London-Amsterdam	100	3	232
	Amsterdam-Hamburg	100	2	235
	London-Brussels	100	4	218
	Brussels-Dusseldorf	100	4	116
	Amsterdam-Copenhagen	100	1	394
	Paris-Rome	114	7	678
	Rome-Istanbul	114	3	864
	Istanbul-Ankara	114	3	226
	Ankara-Baghdad	114	3	758
	Rome-Beirut	114	4	1382
	Beirut-Tehran	114	2	907
	Beirut-Damascus	114	2	50
	Damascus-Tehran	114	2	873
Apr. 1959	London-Amsterdam	100	3	232
	Amsterdam-Hamburg	100	2	235
	London-Brussels	100	3	218
	Brussels-Dusseldorf	100	3	116
	Amsterdam-Copenhagen	100	1	394
July 1959	London-Amsterdam	100	3	232
	Amsterdam-Hamburg	100	3	235
	London-Brussels	100	4	218
	Brussels-Dusseldorf	100	4	116
	Ankara-Baghdad	114	1	758
Oct. 1959	London-Amsterdam	100	3	232
	Amsterdam-Hamburg	100	3	235
	London-Brussels	100	4	218
	Brussels-Dusseldorf	100	4	116
	Ankara-Baghdad	114	1	758
Jan. 1960	London-Brussels	100	2	218
	Brussels-Dusseldorf	100	2	116
	London-Amsterdam	100	2	232
	Amsterdam-Dusseldorf	100	2	111
	London-Hamburg	100	3	464
	Hamburg-Copenhagen	100	3	175
	Ankara-Baghdad	114	1	758
Apr. 1960	London-Hamburg	100(3), 58(1)	4	464
	Hamburg-Copenhagen	100	3	175
July 1960	London-Hamburg	100(3), 58(2)	5	464
	Hamburg-Copenhagen	100	3	175
	London-Amsterdam	58	1	232
Oct. 1960	London-Hamburg	58	1	464

**EXHIBIT E-B****FOREIGN FLAG CARRIERS' JET AIRCRAFT**

The foreign flag carriers which provided major jet competition in the transatlantic market during 1960 for TWA and Pan Am were BOAC and Air France. BOAC and Air France had the following jet aircraft available by the end of 1960:

BOAC		AIR FRANCE	
B-707	Comet	B-707	Caravelle
15	19	17	24

Source: ICAO Fleet Statistics, 1960.

During 1960, BOAC and Air France operated the following non-transatlantic flight segments with jet aircraft where they faced no competitive jet aircraft:

"DX271B, page E-B-2  
(S.H.E. Report (Revised) - Volume Two)"

## BOAC

Month	Flight Segments	Flt. Nos.	Operations per Week	Miles per Flight
March	Singapore-Sydney	714	1	3915
	Beirut-Hong Kong	932	1	4752
	Beirut-Melbourne	708	1	8516
	Calcutta-Sydney	710, 704	2	5679
	London-Santiago	661, 663	2	7244
	London-Montego Bay	483/507	3	4690
	London-Johannesburg	115, 121	4	5638
June	Singapore-Melbourne	714	1	3757
	Cairo-Hong Kong	932	1	5049
	Frankfurt-Sydney	708	1	10249
	Calcutta-Sydney	710	1	5679
	Frankfurt-Bombay	754	1	4081
	Calcutta-Melbourne	706	1	5551
	Montreal -London	606	2	3241
	Toronto-Prestwick, Scotland	612, 616	2	3286
	London-Salisbury, Rhodesia	893	1	5152
	London-Johannesburg	115, 121	6	5638
	London-Santiago	661, 663	2	7244
	Singapore-Melbourne	714	1	3757
	Cairo-Hong-Kong	932	1	5049
Sept.	Frankfurt-Sydney	708	1	10249
	Calcutta-Sydney	710	1	5679
	Frankfurt-Bombay	754	1	4081
	Calcutta-Melbourne	704	1	5551
	London-Johannesburg	115, 121	6	5638
	London-Santiago	661, 663	2	7244
	Singapore-Melbourne	714	1	3757
Dec.	Singapore-Sydney	708	1	3915
	Calcutta-Sydney	710	1	5679
	Calcutta-Melbourne	704	1	5551
	London-Johannesburg	115	2	5638
	London-Santiago	661, 663	2	7244



## AIR FRANCE

Month	Flight Segments	Flight Nos.	Operations per Week	Miles per flt.
March	Los Angeles-Paris	002	2	5663
	Chicago-Paris	030	1	4146
	Paris-Tokyo (via Anchorage)	270	1	8148
June	Paris-Tokyo (via Anchorage)	270	1	8148
	Paris-Lima	109	1	6372
	Paris-Buenos Aires	081,083	2	6878
	Paris-Caracas	107	1	4731
Sept.	Paris-Tokyo (via Anchorage)	270	1	8148
	Paris-Caracas	107	1	4731
	Paris-Lima	109	1	6372
	Paris-Buenos Aires	081,083	2	6878
Dec.	Los Angeles-Paris	002	2	5663
	Paris-Abidjan, Ivory Coast	313,359	2	3027
	Paris-Tokyo (via Anchorage)	272	2	8148
	Paris-Tokyo (via Hong-Kong)	172,174,176	3	7771
	Paris-Hong Kong	262	1	5985
	Paris-Lima	109	1	6372
	Paris-Brazzaville, Rep. of Congo	401,403	2	3742
	Paris-Buenos Aires	081,083	2	6878
	Paris-Caracas	119	1	4731

PROSPECTUS

02/13 EXHIBIT 9/4/6	141 H.S.
---------------------------	-------------

381,916 Shares

**Trans World Airlines, Inc.**

**Common Stock**

(par value \$5 per share)

THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SECURITIES AND EXCHANGE COMMISSION NOR HAS THE COMMISSION PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

Under the subscription offer herein described, which expires at 3:30 P. M., Eastern Standard Time, on December 5, 1952, TWA offers 381,916 shares of Common Stock for subscription by stockholders at \$16 per share, on the basis of one-seventh share for each share held.

	Subscription Price	Underwriting Discounts and Commissions	Proceeds to TWA (1)
Per Unit	\$16	None	\$16
Total	\$6,110,656	None	\$6,110,656

(1) Assuming that all shares are sold but before deducting expenses payable by TWA estimated at \$95,000.

Hughes Tool Company, the holder of 1,937,500 shares of TWA's Common Stock, has agreed to buy sufficient shares of TWA's Common Stock (to the extent sufficient shares are not otherwise sold) to provide TWA with net proceeds from the sale of Common Stock, after deducting expenses of such insurance payable by TWA, of at least \$5,000,000. If less than all the 381,916 shares of Common Stock offered hereby are subscribed for, TWA intends to sell all or a part of the shares not subscribed for to Hughes Tool Company, at the subscription price above mentioned, so that the net proceeds to it from the sale of the shares offered hereby will be at least \$5,000,000.

TWA's outstanding Common Stock is listed on the New York, San Francisco, Los Angeles and Midwest Stock Exchanges and applications have been made to said Exchanges for listing the shares offered hereby. During the period from October 1, 1952 through November 16, 1952, the price of the Common Stock on the New York Stock Exchange ranged from a high of 18 3/4 to a low of 16 1/4. The stock was last sold on 11/16/52 having been 16 1/4.

No person has been authorized to give any information or to make any representations, other than those contained in this prospectus, in connection with the offer contained in this prospectus, and, if given or made, such information or representations must not be relied upon as having been authorized by TWA. This prospectus does not constitute an offer by TWA to sell the Common Stock in any state in which such offer may not lawfully be made.

## TABLE OF CONTENTS

	Page
Registration Statement.....	2
The Company.....	2
Offering to Stockholders.....	3
Purpose of Issue.....	4
Capitalization.....	4
Summary of Consolidated Operations.....	5
History and Business.....	7
Property.....	13
Relations with Hughes Tool Company.....	13
Long-Term Debt.....	14
Common Stock.....	15
Directors and Executive Officers.....	16
Litigation.....	18
Legal Opinion.....	18
Experts.....	18
Certificate of Independent Public Accountants.....	19
Financial Statements.....	20
Additional Information.....	31

## REGISTRATION STATEMENT

Trans World Airlines, Inc. (herein sometimes called TWA) has filed with the Securities and Exchange Commission, Washington, D. C., a registration statement under the Securities Act of 1933, as amended, relating to the shares of Common Stock, par value \$5 per share, offered hereby, and the subscription warrants evidencing the right to subscribe for such shares. For further information, reference is made to such registration statement, including the financial schedules therein and exhibits thereto.

## THE COMPANY

TWA was incorporated as Transcontinental & Western Air, Inc. under the laws of the State of Delaware on December 27, 1934 by the consolidation of two Delaware corporations which had previously been engaged in air transportation. Its name was changed to Trans World Airlines, Inc. on May 17, 1950. TWA's principal business office is at 10 Richards Road, Kansas City, Missouri.

TWA has been engaged in the transportation of persons, property and mail by air since its organization. During that time it has operated a transcontinental system in the United States, and since 1946 it has operated an international system between the United States and points in Europe, Africa and Asia.

381,916 Shares

# Trans World Airlines, Inc.

## Common Stock

(par value \$5 per share)

Transfer Agent  
THE NEW YORK TRUST COMPANY,  
New York

Registrar  
BANKERS TRUST COMPANY,  
New York

### OFFERING TO STOCKHOLDERS

TWA is offering to holders of its outstanding Common Stock of record at the close of business on November 19, 1952, or on such later date as the above-mentioned registration statement becomes effective, the right to subscribe for an aggregate of 381,916 shares of Common Stock, at the rate of one-seventh share for each share then held, at the subscription price stated on the cover page of this prospectus. To evidence the right to subscribe, TWA is issuing transferable subscription warrants to such stockholders. Seven rights are required to subscribe for each share of Common Stock. The rights to subscribe expire at 3:30 P. M., Eastern Standard Time, on December 5, 1952, after which unexercised subscription warrants will be void and of no value.

By Agreement dated January 16, 1951, Hughes Tool Company, the holder of 1,987,938 shares of TWA's Common Stock, agreed to buy sufficient shares of TWA's Common Stock (to the extent sufficient shares are not otherwise sold) to provide TWA with net proceeds from the sale of Common Stock, after deducting expenses of such issuance payable by TWA, of at least \$5,000,000. Hughes Tool Company has the option to satisfy its obligation under the Agreement dated January 16, 1951, by lending TWA an equal amount of cash upon subordinated convertible notes, but TWA is advised that Hughes Tool Company will elect to purchase stock rather than exercise this option. If less than all the 381,916 shares of Common Stock offered hereby are subscribed for, TWA intends to sell all or a part of the shares not subscribed for to Hughes Tool Company at the subscription price above mentioned, so that the net proceeds to it from the sale of the shares offered hereby will be at least \$5,000,000. Reference is hereby made to said Agreement dated January 16, 1951, which is filed as an exhibit to the registration statement, for the detailed provisions thereof and the foregoing statement is qualified in its entirety by such reference.

**Exercise of Subscription Warrants.** Subscription warrants may be exercised by surrender thereof, appropriately filled in and executed, to the Warrant Agent, The New York Trust Company, 100 Broadway, New York 15, N. Y., accompanied by payment for the shares subscribed. No subscription for a fraction of a share will be accepted.

Payment of the subscription price should be made in cash or by check or bank draft or postal or express money order, payable to the order of "The New York Trust Company, Agent". Certificates for shares of Common Stock will be issued as soon as practicable after subscription and payment of the subscription price.

Warrant holders unable to surrender their warrants in New York by the expiration date above mentioned may exercise their subscription rights by forwarding the subscription price by telegraph or otherwise so as to be received by the Warrant Agent at or before 3:30 P. M., Eastern Standard Time, on the expiration date, together with a guarantee in writing or by telegram from a bank, trust company or a member firm of the New York Stock Exchange that the subscription warrants with respect to the shares of Common Stock subscribed for have been transmitted by it, or are in its possession and will be transmitted immediately by it, to the Warrant Agent. Such subscriptions will be accepted subject to withholding of delivery of Common Stock subscribed for until receipt of the duly executed warrants.

**Purchase and Sale of Rights to Subscribe.** Rights may be bought or sold through banks or brokers. For the convenience of warrant holders TWA has made arrangements with the Warrant Agent so that a warrant holder, when forwarding his warrants to the Warrant Agent for exercise, may place an order to buy or to sell sufficient rights (not more than six) so as to enable him to subscribe for a whole number of shares. The execution of such order is subject to receipt of the order by the Warrant Agent not later than the close of business on the last full business day preceding the expiration date, and to the Warrant Agent's being able to find a seller or purchaser, at the time may be.

**Foreign Stockholders.** Subscription warrants will not be mailed to stockholders having registered addresses outside the United States and Canada, but are to be held for such stockholders by the Warrant

Agent, subject to satisfactory arrangements being made with the Warrant Agent for exercise or sale or other disposition thereof, until 10:00 A. M., Eastern Standard Time, on the last full business day preceding the day on which the subscription warrants will expire. The subscription warrants so held, as to which such other arrangements shall not have been made, are then to be sold, if possible, and, to the extent permitted by applicable laws and regulations, the pro rata share of the aggregate net proceeds, if any, therefrom is to be remitted to each stockholder on whose behalf such sale was made or, if such remittance is not permitted, held for the account of such stockholder subject to payment on receipt of lawful instructions.

### PURPOSE OF ISSUE

The net proceeds from the sale of the Common Stock (assuming all shares are sold and after deducting expenses estimated at \$95,000) will be at least \$5,000,000. Such net proceeds will be added to and become part of the general funds of TWA and will be used for such corporate purposes as the management may determine.

Additional working capital is needed because of the payments made and to be made in 1952 as below stated. The need for additional working capital has increased because of the expansion of TWA's business and the introduction of new aircraft into service.

During the calendar year 1952 TWA estimates that it has made or will make expenditures from its general funds aggregating approximately \$32,800,000, of which approximately \$12,000,000 was paid on the purchase price of 56 aircraft and related parts and equipment, \$17,300,000 is for principal, interest, regular and additional sinking fund payments and commitment fees with respect to long-term debt, and \$3,500,000 is for hangar and other construction. During the same period TWA has added to its general funds approximately \$5,000,000 from the sale of Common Stock in March, 1952, and estimates that depreciation will provide it with approximately \$17,200,000, and that it will obtain \$1,100,000 from the sale of Douglas DC-3 aircraft, leaving approximately \$9,500,000 withdrawn from general funds during the year. At July 31, 1952, TWA's consolidated current assets were \$40,940,561 and its consolidated current liabilities were \$45,216,778. TWA's management presently has no definite plans for additional financing during 1953, but no representation is made that additional financing will not be necessary or desirable.

### CAPITALIZATION

	As of November 5, 1952	
	Authorized	Outstanding
3¾% Sinking Fund Debentures (Series A) due June 1, 1956	\$22,437,000.00	\$22,437,000.00
3¾% Sinking Fund Debentures (Series B) due December 1, 1955	\$ 6,480,000.00	\$ 6,480,000.00
3% notes (secured) maturing in monthly installments from November 30, 1952 to May 31, 1953 (1948 Notes)	\$ 2,087,202.69	\$ 2,087,202.69
3% notes (secured) maturing in monthly installments from November 30, 1952 to April 30, 1955 (1950 Notes)	\$ 7,208,571.34	\$ 7,208,571.34
3% note (secured) maturing in monthly installments from November 30, 1952 to May 31, 1956 (Martin Notes)	\$11,571,200.44	\$11,571,200.44
3¾% notes (secured) maturing in monthly installments from November 30, 1952 to May 31, 1956 (Martin Notes)	\$ 389,583.32	\$ 389,583.32
3¾% note (secured) maturing in monthly installments from November 30, 1952 to July 31, 1955 (Martin Notes)	\$ 2,805,000.00	\$ 2,805,000.00
3½% notes (secured) maturing in monthly installments from November 30, 1952 to July 31, 1956 (1049 Notes)	\$ 8,707,235.06	\$ 8,707,235.06
Common Stock, par value \$5 per share	4,000,000 shs.	2,673,418 shs.

If all Common Stock being registered is sold, 3,055,334 shares will be outstanding. At November 5, 1952, TWA had outstanding other long-term debt aggregating \$3,814,105.45, including \$3,247,636.22 under conditional sale contracts. The interest on the Series A and Series B Debentures was increased from 3½ to 3¾% effective March 1, 1951. For additional information concerning TWA's long-term debt, see "Long Term Debt" item.



#### Other Recent Developments

In February, 1952, TWA offered to its stockholders 212,537 shares of its Common Stock at the price of \$21.25 per share. 2,5046 shares were subscribed for on this offering and an additional 25,728 shares were thereafter sold to Hughes Tool Company at the same price per share. After deducting expenses, TWA realized net proceeds from such sales of \$5,000,018.64.

In connection with a program for additional financing for The Glenn L. Martin Company, TWA agreed to increase by \$25,000 the price of each of the 40 Martin 474 aircraft it was purchasing, waived its rights to acquire additional Martin 404 aircraft, and purchased for \$5,100,000 the twelve Martin 202A aircraft it previously leased from The Glenn L. Martin Company.

Operations at Newark Airport, which had been temporarily suspended early in 1952, were resumed in July, 1952.

In July, 1951, a flood halted all operations at TWA's main overhaul base at Kansas City, Kansas, for a considerable period. During 1951 provision for estimated uninsured flood losses was made through a charge of \$2,000,000 to operating expense. As of September 30, 1952, \$239,577 of this provision remained on the books to cover additional losses not processed as of that date.

The City of Kansas City, Missouri, proposes to build a new industrial airport, which, under present plans, will include a main overhaul base to be leased to TWA having substantially larger capacity than that presently available to it.

Following the outbreak of hostilities in Korea, TWA participated, by lease of aircraft to Northwest Airlines, Inc., in the Pacific airlift. Four Douglas C-54 aircraft were so leased at November 1, 1952. Such lease is subject to the Renegotiation Acts. TWA has received formal notice that renegotiation proceedings have commenced for the years 1950 and 1951, but no further steps have been taken in such proceedings. For some time, representatives of TWA and other air carriers have been engaged in studies with agencies of the United States government to determine the mobilization pattern for air transportation in the event of a greater national emergency. The subject matter of these discussions is classified information, but public statements of officers of the government indicate an understanding of the necessity for continued operation in wartime of a substantial amount of air transportation under private civilian management.

The program of production for defense being carried on by the United States government under the Defense Production Act of 1950 has not thus far interfered with TWA's operations to a material degree.

Since June 1, 1948, TWA and Delta Airlines, Inc. have interchanged aircraft at Cincinnati, Ohio, where one-plane service is provided between the TWA points Detroit, Toledo, Columbus and Dayton, and Delta points in the southeastern United States. TWA has applied to the Civil Aeronautics Board for approval of certain other similar interchange services with other air carriers.

TWA provides sky tourist service, without the deluxe accommodations of regular service and at lower rates, on heavily traveled segments of the transcontinental system by four-engine aircraft in which extra seats have been installed. In May, 1952, TWA inaugurated a similar tourist service on its international system between New York and London and Paris.

TWA sustained losses in 1946, 1947 and 1948. The factors contributing to the losses included the introduction of new and additional equipment (some of which was grounded for an extended period as a result of governmental orders), a very rapid expansion of the total air transport capacity in relation to the increase in demand for service, the cost of developing the international system, losses on other airline investments, and a pilot strike in 1946. Operations during 1949, 1950 and 1951 and the seven months ended July 31, 1952, were carried on at a profit. TWA's business has been and will continue to be affected by such matters as changes in the levels of general business activity and employment, costs and wages; competitive conditions; new developments in air and surface transportation; changes in taxation; Federal and State legislation; the national defense production program; orders of regulatory bodies; and political and economic conditions abroad.

At September 30, 1952, TWA had about 14,350 employees, nearly half of whom were represented by unions. Contracts recently negotiated with unions representing five groups of employees require approval of stabilization authorities before being put into effect.

#### Insurance

TWA maintains certain hull, public liability, passenger liability, property damage, baggage, air cargo, and various other types of insurance. Premiums for such insurance are in many cases on a negotiated basis. The management of TWA considers its insurance adequate as to coverage and amount.

D/2

## PROPERTY

As of November 1, 1952, TWA had a fleet of 175 aircraft, of which 143 were assigned to its transcontinental system, 26 to its international system, four had been leased to Northwest Airlines, Inc. for use in the Pacific airlift and two Douglas DC-3 aircraft had been leased to another airline. All aircraft in use are maintained in airworthy condition in accordance with procedures approved by the Civil Aeronautics Administration. The aircraft above referred to are as follows:

Type	Owned	Leased	Total	Approximate Age in Years
Four Engine:				
Lockheed Constellation C-49	32	0	32	6 - 8
Lockheed Constellation 749	12	0	12	4 - 5
Lockheed Constellation 749A	24	0	24	1½ - 3
Lockheed Constellation 1049	10	0	10	0 - ¾
Douglas C-54	11	2	13	7 - 8
Two Engine:				
Martin 202A	12	0	12	2½
Martin 404	40	0	40	¾ - 1
Douglas DC-3	32	0	32	8 - 16
Total	173	2	175	

All these aircraft except Douglas C-54 and Douglas DC-3 aircraft and 16 Lockheed Constellation 049 aircraft are mortgaged or subject to conditional sale contracts referred to below under "Long-Term Debt".

For information as to the estimated service lives of aircraft, see Note 4(a) to the financial statements. Of the Douglas DC-3 aircraft above mentioned, TWA has made arrangements to sell 9 in the near future, and presently plans to withdraw most of its Douglas DC-3 aircraft from service before the end of 1953. No estimate can be given as to the date Douglas C-54 aircraft will be withdrawn from service.

TWA leases hangars, office space and similar property at various locations. For information as to obligations under leases and certain commitments for construction see Note 15 to financial statements.

## RELATIONS WITH HUGHES TOOL COMPANY

Hughes Tool Company, a Delaware corporation (hereinafter sometimes called Hughes), all the outstanding stock of which is owned by Howard R. Hughes, well-known industrialist, motion picture producer, aviator and aeronautical engineer, owns 1,567,938 shares of the Common Stock of TWA which is approximately 75% of the Common Stock outstanding. In 1944 the Civil Aeronautics Board found Hughes' control of TWA consistent with the public interest and approved it on condition that commercial transactions between the two companies be limited to items not exceeding \$200 in amount and totaling not more than \$10,000 per year. By subsequent proceedings the condition has been modified to remove any limits on transportation purchased by Hughes from TWA at regularly published rates; to permit TWA to repair Hughes' aircraft and sell aviation fuel to Hughes at prices charged by TWA to others; and to permit TWA to purchase certain radar units from Hughes, provided the price did not exceed cost or the price of similar sales by Hughes to any other airline, whichever is lower. The Board has also permitted a number of other transactions, of which those entered into subsequent to November 1, 1949, are as follows:

(1) The sale by Hughes to TWA of six Constellation 049 aircraft at Hughes' cost, plus the cost of any modification agreed to by TWA, pursuant to a sales agreement dated February 2, 1950. The price (exclusive of modification costs) was \$3,711,256.97.

(2) The financing by Hughes of \$2,771,331 (approximately 75%) of the purchase price of four Constellation 749A aircraft ordered by TWA from Lockheed Aircraft Corporation pursuant to an agreement dated March 2, 1951.

(3) The sale by TWA to Hughes, at TWA's cost, of a Constellation 749A aircraft and a Martin 404 aircraft, pursuant to agreements dated, respectively, December 4, 1950 and March 2, 1951.

(4) The implementation of agreements dated April 5, 1950 and January 16, 1951 between Hughes, TWA and The Equitable Life Assurance Society of the United States. Pursuant to the agreement dated April 5, 1950, TWA realized net proceeds of approximately \$5,000,000 through an offering of Common Stock to its stockholders, of which Hughes purchased 204,110 shares for \$4,337,337.50. The agreement dated January 16, 1951 is described above under "Offering to Stockholders".

Transactions between TWA and Hughes and its subsidiaries (excluding purchase by Hughes of air transportation and the specific transactions referred to above) have not been substantial in amount in any year of the three year period ended November 1, 1952.

DX 286 AX-1967  
DX 286, page 1  
(TWA Board Minutes-Jan. 13, 1955)

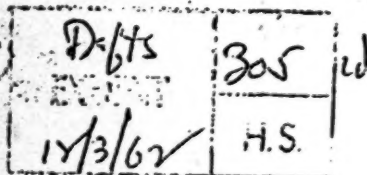
MINUTES OF THE BOARD OF DIRECTORS MEETING  
TRANS WORLD AIRLINES, INC.

January 13, 1955



A special meeting of the Board of Directors of Trans World Airlines, Inc., was held at 9:30 A.M., Thursday, January 13, 1955, in the Board Room of The National Bank of Commerce of Houston, Houston, Texas.

Directors present were: Messrs. Palmer Bradley  
E. O. Cocke  
Powel Crosley, Jr.  
R. S. Damon  
Noah Dietrich  
Arthur Eisenhower  
A. V. Leslie  
Warren Lee Pierson  
Harry Rogers  
A. D. Simpson  
Thomas A. Slack



constituting a quorum.

Directors absent were: Messrs. Fred W. Ayers  
John E. Bismuth  
John A. Collings  
Oscar F. Holcombe  
Sidney Maestre  
Lloyd Wright

Mr. Gerald B. Brophy of Counsel and Mr. George H. Clay, Vice President and Secretary of the Corporation, were present by invitation.

Mr. Warren Lee Pierson, Chairman, called the meeting to order and thereafter presided.

The Secretary of the Corporation, Mr. George H. Clay, acted as Secretary of the meeting.

APPROVAL OF MINUTES

Minutes of the Board of Directors meeting of December 6, 1954, were approved.

PRESENTATION OF SERVICE BUTTONS TO MESSRS.  
POWEL CROSLY, JR. AND GERALD B. BROPHY

The Chairman of the Board presented a 15-year service button to Mr. Powel Crosley, Jr., in recognition of his services to the Corporation since December 15, 1939.



DX 286

CONSIDERATION OF PURCHASE  
OF ADDITIONAL AIRCRAFT

Mr. Noah Dietrich pointed out to the Board that for many months the choice of the most modern equipment to facilitate the program of this Corporation has been a matter of which the Board has been aware and concerning which the officers of this Corporation have been in frequent discussion with the officers of Hughes Tool Company. It was made known to the Board that Hughes Tool Company after discussions with officers of this Corporation did during the month of December enter into a contract with Lockheed Aircraft Corporation for the purchase of twenty-five Model 1419A-01-120 airplanes of the Lockheed Constellation type and powered by turboprop engines of the latest type and design and that the purpose of such order by Hughes Tool Company was to assure to this Corporation the prior position in the purchase of these airplanes. Hughes Tool Company paid the sum of \$16,817,606.25 to Lockheed Aircraft Corporation on account of the contract. It was explained that in order to assist this Corporation in its long range equipment program Hughes Tool Company will tender to this Corporation an option to acquire all of the aforesaid airplanes by virtue of the Hughes Tool Company contract. This Corporation in the event of the exercise of such option would be required only to make Hughes Tool Company whole and to pay interest upon funds advanced by Hughes Tool Company at a rate no greater than 3% per annum. A general discussion of the whole matter including the nature and specifications of the airplanes was held.

Upon motion duly made, seconded and unanimously carried, Mr. R. S. Damon not voting, it was resolved that since no financial risk of any kind on the part of this Corporation has been or prior to the exercise of the option (if exercised) will be involved in the negotiations, the action of the officers of the Corporation in the premises is hereby approved.

After explanation to the Board by company counsel of the nature of the contract of purchase entered into between Hughes Tool Company and Lockheed Aircraft Corporation and explanation of the fact that acceptance by this Corporation of an option to succeed to the interest of Hughes Tool Company in the purchase of such planes would create no obligation on the part of this Corporation but merely the acquisition of a valuable right, it was, upon motion duly made, seconded and unanimously carried, Mr. R. S. Damon not voting,

RESOLVED, that the executive officers of this Corporation be, and they hereby are, authorized and instructed to accept any option tendered to this Corporation by Hughes Tool Company to be subsequently exer-



DX 286

cised by this Board at its discretion which would vest in this Corporation the rights of Hughes Tool Company with respect to the acquisition of the new Lockheed equipment discussed at this meeting, provided that the acceptance of the option does not in any way bind this Corporation at this time to any financial responsibility or to take any future action of any kind in the premises.

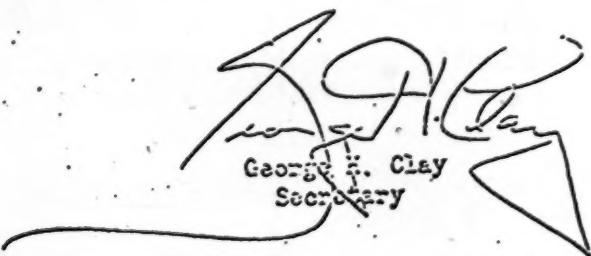
XT 502732

DATES AND PLACES OF FEBRUARY, MARCH  
AND APRIL BOARD MEETINGS.

It was the consensus of the meeting that the regular meeting scheduled to be held Friday, February 25, 1955, should be held at 9:30 A.M., in New York City and that the regular meeting scheduled to be held Friday, March 25, 1955, should be held at 9:30 A.M., in Phoenix. The meeting was advised that the April meeting of the Board of Directors would be held on Thursday, April 28, 1955, at 20 West Ninth Street, Kansas City, Missouri, in connection with the Annual Meeting of Stockholders being held that same day.

ADJOURNMENT

There being no further business to come before the meeting,  
it was adjourned at 12:05 P.M.

  
George H. Clay  
Secretary





DX 287, page 1  
(TWA Board Minutes-Dec. 13, 1955)

MINUTES OF THE BOARD OF DIRECTORS MEETING  
TRANS WORLD AIRLINES, INC.

December 13, 1955

A special meeting of the Board of Directors of Trans World Airlines, Inc., was held at 9:30 a.m., Tuesday, December 13, 1955, at the offices of the Corporation, 380 Madison Avenue, New York, New York.

Directors present were: Messrs. Fred W. Ayers  
John E. Bierwirth  
Palmer Bradley  
E. O. Cocke  
John A. Collings  
R. S. Damon  
Noah Dietrich  
Arthur Eisenhower  
Oscar F. Holcombe  
A. V. Leslie  
Warren Lee Pierson  
Harry Rogers  
A. D. Simpson  
Thomas A. Slack  
Lloyd Wright



constituting a quorum.

Directors absent were: Messrs. Powell Crosley, Jr.  
Sidney Maestre

Mr. George A. Spater of Counsel and Mr. George H. Clay, Vice President and Secretary of the Corporation, were present by invitation.

Mr. Warren Lee Pierson, Chairman, called the meeting to order and thereafter presided.

The Secretary of the Corporation, Mr. George H. Clay, acted as Secretary of the meeting.

APPROVAL OF MINUTES

Minutes of the Board of Directors meeting of November 14, 1955, were approved.

REPORT OF THE CHAIRMAN OF THE BOARD

The Chairman of the Board reviewed the decision of the CAB in the additional Southwest-Northeast Service Case by which this Corporation was authorized to provide service at both Tulsa and Oklahoma City and he advised of the appointment of G. Joseph Minetti as a member of the CAB, replacing Josh Lee.

DX 287, page 5  
(TWA Board Minutes-Dec. 13, 1955)

After discussion, upon motion duly made, seconded and carried,  
it was

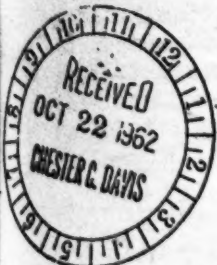
RESOLVED, that the proper officers of this Corporation be, and they hereby are, authorized for and on behalf of this Corporation to execute and enter into an agreement covering the leasing by this Corporation, for a ten-year period, of space in Denver, Colorado, for CTO and district offices, at a monthly rental of not in excess of \$1,000, and upon such further terms and conditions as are deemed to be in the best interests of this Corporation.

The Board of Directors authorized an appropriation in the amount of \$83,000 to cover alterations, improvements and furnishings, and \$10,000 to cover air conditioning for CTO and district offices at Denver.

OPTION TO PURCHASE 8 MODEL 1049G CONSTELLATION  
AIRCRAFT UNDER LOCKHEED CONTRACT LD-147

It was called to the attention of the Board that officers of this Corporation recently advised Hughes Tool Company that additional Model 1049G airplanes of the Lockheed Constellation type will be needed in 1956. Upon being advised of such fact, and after further discussions with officers of this Corporation, the officers of Hughes Tool Company negotiated a contract with Lockheed Aircraft Corporation covering the purchase of five (5) Model 1049G's with an option for an additional three (3) such airplanes.

This contract (known as Lockheed Contract LD-147) was finally executed by Hughes Tool Company and Lockheed Aircraft Corporation on September 24, 1955; and the option to increase the number of airplanes from five (5) to eight (8), was exercised October 15, 1955, and is evidenced by Change Order No. 1 executed as of October 17, 1955. There was presented to the Board a copy of the executed agreement, together with a copy of Change Order No. 1, showing a basic price of \$1,929,000.00 per airplane, subject to the usual Lockheed escalation provision, and calling for delivery of two airplanes in June, two in July, two in August, and two in September, 1956. The contract provides that the airplanes will incorporate all of the specification changes and improvements negotiated by this company in connection with its Contract LD-111 and will incorporate also any and all additional changes necessary to meet any new CIA regulations. The purchase price of the airplanes is payable in two installments -- 25% upon execution of the contract and the balance upon delivery. The remaining terms and conditions of the contract are substantially the same as those contained in LD-111.



The Board was advised that Hughes Tool Company has tendered to this Corporation an option agreement which will permit this Corporation to acquire, at any time on or before April 30, 1956, all of Hughes Tool Company's rights under Contract LD-147 by reimbursing Hughes Tool Company for its payments made to Lockheed and its other direct costs incurred in connection with the contract, and by paying to Hughes Tool Company an additional amount equal to interest at the rate of three (3%) per cent per annum on all funds advanced by Hughes Tool Company under the contract.

The executed option agreement was exhibited to the Board and there followed a general discussion of the terms of LD-147 and the tendered option. The Board was of the unanimous opinion that the terms of the contract and of the option were satisfactory and the Board expressed its appreciation for the action of Hughes Tool Company's Board and officers in making available to this Corporation the additional 1049G airplanes.

Upon motion duly made, seconded and carried, Messrs. Fred W. Ayers, Noah Dietrich and Harry Rogers not voting, the following resolution was adopted:

**RESOLVED**, that receipt of the option agreement submitted by Hughes Tool Company, Inc., and the same hereby is, acknowledged and its form approved; that the officers of this Corporation hereby are authorized to assist Hughes Tool Company in the administration of Contract LD-147 and in the negotiation of specification changes in the Model 1049G airplanes covered by such contract; and that the proper officers of this Corporation hereby are authorized to exercise the option at such time as they deem appropriate.



OPTION TO PURCHASE 25 MODEL 1649 CONSTELLATION  
AIRCRAFT UNDER LOCKHEED CONTRACT LD-138

Corporation's counsel called to the attention of the Board that at its meeting of January 13, 1955, a resolution was adopted authorizing the executive officers of the Corporation to accept any option tendered to this Corporation by Hughes Tool Company, for subsequent exercise by this Board at its discretion, with respect to the acquisition of the new Lockheed equipment, described as Model 1449A-01-120 of the Lockheed Constellation type. Counsel further reported that the contract of Hughes Tool Company for the acquisition of such aircraft had been amended to provide for the manufacture and delivery

DX 287

DX 287, page 7

(TWA Board Minutes-Dec. 13, 1955)

of 25 new Model 1649 airplanes in lieu of the earlier type, and that Hughes Tool Company has now delivered an option, relating to such new aircraft, a copy of which was exhibited to the meeting. By such instrument this Corporation was given the option to acquire all of the rights of Hughes Tool Company under the purchase agreement with Lockheed described therein (being Purchase Agreement LD-138) covering twenty-five (25) new Model 1649 airplanes, Lockheed Constellation type. There followed a general discussion of the terms of LD-138 and the tendered option.

Upon motion duly made, seconded and carried, Messrs. Fred W. Ayers, Noah Dietrich and Harry Rogers not voting, the following resolution was adopted:

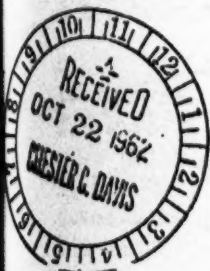
RESOLVED, that receipt of the option agreement submitted by Hughes Tool Company be, and the same hereby is, acknowledged and its form approved; and that the officers of this Corporation hereby are authorized to continue assisting Hughes Tool Company in the administration of Lockheed Contract LD-138 and in negotiation of specification changes in the Model 1649 airplanes covered by such contract; provided, however, that the option not be exercised until such date as may be fixed by subsequent action of this Board.

EXTENSION OF LEASE OF CTO SPACE  
IN ASTOR HOTEL - NEW YORK CITY

The meeting was advised that the Astor Estate had terminated its lease with the Hotel Astor corporation which in turn had terminated its sublease with this Corporation of CTO space in the Astor Hotel in New York City; that the 1515 Broadway, Inc., corporation had become the new lessee of the Astor Hotel with an option to purchase the hotel and that an agreement had been reached with the new lessee whereby, if the new lessee exercises its option to purchase the hotel, this Corporation's cancelled lease of CTO space in the Astor Hotel will be reinstated and extended to May 31, 1965, on substantially the same terms as contained in the original lease.

Upon motion duly made, seconded and carried, Mr. R. S. Damon not voting, it was

RESOLVED, that the proper officers of this Corporation be, and they hereby are, authorized for and on behalf of this Corporation to execute and enter into an agreement with 1515 Broadway, Inc., covering the

X  
150  
2700



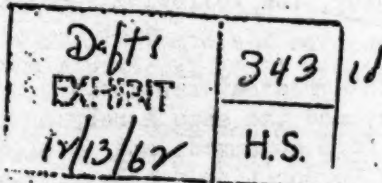
DX 289, page 1  
(TWA Board Minutes-April 26, 1956)

MINUTES OF THE BOARD OF DIRECTORS MEETING  
TRANS WORLD AIRLINES, INC.

April 26, 1956

A special meeting of the Board of Directors of Trans World Airlines, Inc. was held at 9:30 a.m., Thursday, April 26, 1956, at the offices of the Corporation, 20 West 9th Street, Kansas City, Missouri.

Directors present were: Messrs. Palmer Bradley  
E. O. Cocke  
John A. Collings  
Moah Dietrich  
Arthur Eisenhower  
Oscar Holcombe  
A. V. Leslie  
Sidney Maestre  
H. E. Montrose  
Warren Lee Pierson  
Harry Rogers  
Ben-Flaming Sessel  
A. D. Simpson



constituting a quorum.

Directors absent were: Messrs. Fred W. Myers  
Donald C. Crosby, Jr.  
Thomas A. Slack  
Lloyd Wright

Mr. George A. Spater of counsel and Mr. George H. Clay, Vice President and Secretary of the Corporation, were present by invitation.

Mr. Warren Lee Pierson, Chairman, called the meeting to order and thereafter presided:

The Secretary of the Corporation, Mr. George H. Clay, acted as Secretary of the meeting.

APPROVAL OF MINUTES

Minutes of the Board of Directors meeting of March 24, 1956, were approved.

REPORT OF THE CHAIRMAN OF THE BOARD

The Chairman of the Board reported on his recent overseas trip, on conferences held in Italy concerning summer schedules, on the Egyptian situation and the cordial relations existing between this Corporation and that government, on his visit to Beirut, on the possibility that this Corporation might be asked to assist in the development of an airline for





DX 289, page 2

(TWA Board Minutes-April 26, 1956)

Year, on the outstanding job being performed by this Corporation in Spain and on the signing of the new Ethiopian Agreement, under which fees have been increased. He advised that CAB examiners had recommended that this Corporation's application for an extension of its route from Colombo to Manila be approved; that its route be extended from New York to Boston via Hartford-Springfield; that it be granted additional authority to conduct service between New York and Washington, D. C., via Philadelphia and Baltimore; and that Tucson be designated as an intermediate point on its Route #2.

He reported on the present status of the Phoenix-Denver Case, the St. Louis-New York Nonstop Case, the Great Lakes-Florida Case, the St. Louis-Southeast Case, the Dallas-West Coast Case, the Polar Route cases, the International Mail Rate Case, the Frankfurt-Zurich extension and the proposed General Fare Investigation. He reported generally on recent CAB appointments and on the Celler Committee investigation.

#### INVESTMENT IN LINEE AEREE ITALIANE (LAI)

The Chairman advised the Board that LAI had recently decided to increase its capital from the present figure of 1.5 billion Lire to 5.5 billion Lire, a materially greater increase than contemplated at the time this subject was discussed at the Board meeting of December 13, 1955. If the Corporation should maintain its full 40% interest in LAI, the new investment required would substantially exceed the expenditure of \$1,605,000 authorized by the Board at its December 13, 1955 meeting.

The Chairman stated that an individual investor in Italy has indicated that he would be willing to acquire a 10% interest in LAI, in the event the Corporation did not desire to take up its full 40%. If the Corporation should maintain its interests in LAI at 30% of the total capital, it would be required to put up an additional 1,050,000,000 Lire, which is the equivalent of \$1,680,000 at 625 Lire to the dollar.

After extended discussion, upon motion duly made, seconded and carried, the following resolutions were adopted:

**RESOLVED**, that in connection with the proposal of Linee Aeree Italiane to increase its capitalization to 5.5 billion Lire, the Corporation shall purchase from Linee Aeree Italiane such additional shares of its capital stock as may be needed for the Corporation to maintain an interest of 30% in the total capital stock of Linee Aeree Italiane after the proposed increase, for an amount not to exceed 1,050,000,000 Lire, and the proper officers of the Corporation be, and they hereby are, authorized to take such steps as may be necessary or desirable in their discretion to consummate such purchase.

XT 502743

DX 289, page 9  
(TWA Board Minutes-April 26, 1956)



modifications of the Agreement and Lease of premises, as amended, shall be made as the officer executing the same shall approve as being in the best interests of this Corporation, such approval to be conclusively evidenced by the signature of such officer.

RESOLVED, that the proper officers of this Corporation be, and they hereby are, authorized and empowered to do or cause to be done all such further acts and things as may be necessary or desirable and convenient and proper for the purpose of carrying out the intent of the foregoing resolution.

OPTIONS TO PURCHASE 8 MODEL 1049G CONSTELLATIONS  
AND 25 MODEL 1649A CONSTELLATIONS

Attention of the Board was called to the fact that Hughes Tool Company, by agreements dated November 10, 1955, had granted options to the Corporation for the purchase of (1) 8 new Model 1049G aircraft under Lockheed Contract LD-147 and (2) 25 new Model 1649A aircraft under Lockheed Contract LD-133, and that at the Directors' meeting of December 13, 1955, the Board had acknowledged receipt of such option agreements, had approved their form and had authorized the officers of the Corporation to assist Hughes Tool Company in the administration of the contracts and in the negotiation of specification changes in the airplanes covered by the contracts. In the case of the option on 1049G aircraft, the officers were authorized by the Board to exercise the option at such time as they deemed appropriate, but in the case of the option on the 1649A aircraft, the Board provided that the option should not be exercised until such date as may be fixed by subsequent action of the Board. The option for the 8 Model 1049G aircraft has not yet been exercised.

Subsequent to the Board meeting of December 13, 1955, officers of the Corporation requested Hughes Tool Company to expand the options so as to include spare engines and spare parts needed for the aircraft and also to make provision for the financing of the aircraft, engines and spare parts by Hughes Tool through conditional sale contracts. Hughes Tool Company acquiesced in these proposals and has submitted revised option agreements dated April 20, 1956, including the following terms, among others:

1. Option to purchase 8 Model 1049G Constellation aircraft under Lockheed Contract LD-147.

The revised option agreement grants the Corporation the right to acquire from Hughes Tool Company, in addition to the 8 Model 1049G airplanes covered in the original option agreement, all of the interest of Hughes Tool Company in any spare engines up to a maximum purchase price of \$726,000 and all of the interest of Hughes Tool Company in any other spare parts up to a maximum purchase price of \$1,524,000 which may be acquired by Hughes Tool Company for use in connection with the 1049G airplanes.

XT 502730

DX 289, page 10  
(TWA Board Minutes-April 26, 1956)

D-1289

AT  
502751

In accordance with the terms of the revised option agreement, the Corporation will be required to make no payment at the time of exercise of the option. The aircraft, spare parts and spare engines will be sold to the Corporation by Hughes Tool Company under a conditional sale contract and payment therefor will be made in sixty equal monthly installments beginning with delivery of the first airplane. Interest on the unpaid balance will be the average interest rate payable by Hughes Tool Company on any indebtedness incurred by it for the purpose of financing the purchase of the airplanes, spare engines and spare parts, or if no such indebtedness is incurred, the prime commercial interest rate current in New York City at the time of the execution of the conditional sale contract.

The revised option provides for its exercise on or before May 31, 1956, instead of the April 30, 1956, date contained in the original option.

2. Option to purchase 25 Model 1649A Constellation aircraft under Lockheed Contract LD-138.

The revised option agreement grants to the Corporation the right to acquire from Hughes Tool Company, in addition to the 25 Model 1649A airplanes covered in the original option agreement, all the interest of Hughes Tool Company in any spare engines up to a maximum purchase price of \$5,500,000 and all of the interest of Hughes Tool Company in any other spare parts up to a maximum purchase price of \$5,700,000 which may be acquired by Hughes Tool Company to be used in connection with the 1649A airplanes.

The option agreement for the 1649A airplanes, like that for the 1049G airplanes, also provides for the financing of the aircraft, as well as the engines and spare parts, by Hughes Tool Company through a conditional sale contract permitting payments by the Corporation over a sixty-month period.

The date for the exercise of the option for the 1649A aircraft remains the same in the revised agreement as in the original agreement.

Copies of the revised option agreements were submitted to the Board. Thereafter there followed a general discussion of the terms of the revised options. It was unanimously agreed that the modifications of the options were in all respects favorable to the Corporation.

Upon motion duly made, seconded and carried, Messrs. Noah Dietrich, H. E. Montrose and Harry Rogers not voting, it was

**RESOLVED**, that receipt of the revised option agreements dated April 20, 1956, submitted by Hughes Tool Company be, and the same hereby are, acknowledged and their form approved; and that the officers of the Corporation hereby are authorized to continue assisting Hughes Tool Company in the administration of Lockheed Contracts LD-147 and 138, in the acquisition of spare engines and other spare parts and in the negotiation of specification changes





DX 289, page 11  
(TWA Board Minutes-April 26, 1956)

RESOLVED, that the proper officers of the Corporation be, and they hereby are, authorized, subject to prior approval of the Civil Aeronautics Board, to exercise such options at such time as they deem appropriate, and to take such other steps, including the execution of the conditional sales contracts and such other agreements or documents as may be necessary or desirable in their discretion to consummate the acquisition and financing of the airplanes, spare engines and spare parts covered by such options.

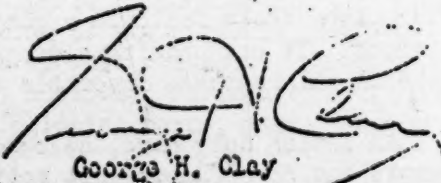
LEASE OF HANGAR SPACE IN NATIONAL AIRLINES, INC.  
HANGAR - NEW YORK INTERNATIONAL AIRPORT

Upon motion duly made, seconded and carried, it was

RESOLVED, that the proper officers of this Corporation be, and they hereby are, authorized in the name and on behalf of this Corporation to execute and enter into an agreement with National Airlines, Inc., covering the leasing by this Corporation of one bay and 7,548 sq. ft. of shop space in National Airlines' hangar at New York International Airport and of related ramp space for the period May 1, 1956 to December 31, 1957, at an annual rental of \$60,000 and upon such further terms and conditions as said officers may deem to be in the best interests of this Corporation.

ADJOURNMENT

There being no further business to come before the meeting, it was adjourned at 11:55 a. m.

  
George H. Clay  
Secretary



DX290  
(Toolco-TWA Conditional Sale Contract-  
L-1049Gs, 6/6/56)

CONDITIONAL SALE CONTRACT

dated as of June 6, 1956,

between

HUGHES TOOL COMPANY  
as Seller

and

TRANS WORLD AIRLINES, INC.



Doc. No. 800,246  
Date 7/12/56 Time 3:35 P.M.

**CONDITIONAL SALE CONTRACT**

By *[Signature]* *Examiner*  
Contract of Conditional Sale made as of the 1<sup>st</sup> day of June, 1956, between HUGHES TOOL COMPANY, a Delaware corporation (hereinafter sometimes called the "Seller"), with its principal place of business at Houston, Texas, and TRANS WORLD AIRLINES, INC., a Delaware corporation (hereinafter sometimes called the "Buyer"), with its principal place of business at Kansas City, Missouri,

THE INTEREST OF THE SELJER IN THE AIRCRAFT AND EQUIPMENT COVERED HEREBY IS THAT OF A CONDITIONAL SELLER AND THE INTEREST OF THE BUYER THEREIN IS THAT OF A CONDITIONAL BUYER.

RECORDED

Civil Aeronautics Administration

WITNESSETH: Date *July 20, 1956* Time *6:30 P.M.*

Doc. No. *805661*

WHEREAS, Hughes has contracted to purchase from Lockheed Aircraft Corporation (hereinafter called "Lockheed") the eight (8) Model L-1049G Lockheed Constellation Airplanes identified as follows:

C.A.A. Registration No.

Mfr. Serial No.

RECORDED  
Civil Aeronautics Administration  
Date *7-26-56* Time *6:11 P.M.*  
Doc. No. *818437*  
By *Mary T. Freeman*  
*Covers N7127C*

RECORDED  
Civil Aeronautics Administration  
Date *July 31, 1956* Time *5:02 P.M.*  
Doc. No. *807648*  
*Covers N7127C only*

together with the airplane engines (each of which is of 750 or more rated take-off horsepower and will be later identified by manufacturer's serial number in a supplement to this Conditional Sale Contract) installed in each thereof on the date of delivery of such airplanes to Hughes and together with the propeller assemblies and all other equipment and accessories attached to such airplanes and engines on

Date *Aug. 31, 1956* Time *10:18 A.M.*

Doc. No. *813780*

By *Mary T. Freeman*

Date *Aug. 27, 1956* Time *3:53 P.M.*

Doc. No. *812206*

By *[Signature]*

*Covers N7127C*  
RECORDED  
Civil Aeronautics Administration  
Date *Sept. 28, 1956* Time *4:24 P.M.*  
Doc. No. *818837*  
By *Mary T. Freeman*  
*Examiner*

DX290, page 2  
(Toolco-TWA Conditional Sale Contract-  
L-1049Gs, 6/6/56)

called "The Airplanes");

WHEREAS, Hughes has also contracted to purchase from various vendors extra airplane engines (each of which is of 750 or more rated take-off horsepower and will be later identified by manufacturer's serial number in a supplement to this Conditional Sale Contract) and propeller assemblies and airframe spare parts, spare parts for airplane engines and for propeller assemblies, and other accessories, flight equipment and parts, for use on or in connection with the operation or maintenance of the Airplanes at, in or near repair or overhaul bases, airports, airfields, landing strips, hangars, warehouses, storehouses and buildings owned, operated, leased or used by Buyer at any one or more of the locations shown on Exhibit I annexed hereto (all of which engines, propeller assemblies, parts, accessories and equipment are hereinafter referred to as "Spares"); and

WHEREAS, Hughes desires to sell and TWA desires to buy the Airplanes and Spares pursuant to the conditional sale arrangements set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants herein contained, the parties hereto agree as follows:

1. Seller agrees to sell to Buyer and Buyer agrees to purchase the Airplanes and Spares upon the terms and conditions hereinafter set forth.

2. (a) Simultaneously upon conveyance of title to each Airplane to Seller, such Airplane shall forthwith be delivered to Buyer and Buyer shall accept such delivery at Lockheed Air Terminal, Burbank, California, or at such other place to which the Airplane has been delivered to Seller.

them to be delivered, to Buyer at Kansas City, Missouri, or such other place as may be designated by Buyer, such deliveries to be made upon delivery of the first Airplane to Buyer, or as soon thereafter as practicable, and with respect to Spares not then delivered to Seller, upon delivery of such Spares to Seller, or as soon thereafter as practicable.

3. (a) The purchase price of each Airplane for purposes of this Contract shall be the aggregate of

(1) The amounts Seller shall have paid Lockheed for such Airplane at the time of its delivery to Buyer hereunder;

(2) All additional direct costs which have been paid or incurred by Seller at the time of the delivery of such Airplane to Buyer and are attributable to such Airplane, including, but not limited to, costs of "customer furnished equipment". To the extent that any such costs are not specifically attributable to a particular Airplane they shall be allocated equally among the Airplanes at the time not delivered to Buyer;

(3) An amount equal to interest at the rate of three per cent (3%) per annum on the average amount of the outstanding advance payments made by Seller applicable to such Airplane. The average amount of the outstanding advance payments applicable to each Airplane shall be computed by considering the payments made or costs incurred as set forth in subparagraphs (1) and (2) of this paragraph 3(a) as outstanding from the respective dates such payments were made or such costs were incurred by Seller and until the delivery of such Airplane to Buyer under this Contract.

of this Contract shall be the aggregate of

(1) the total payments made therefor by Seller to the vendors of such Spares at the time of the delivery of the first Airplane to Buyer hereunder;

(2) all additional direct costs which have been paid or incurred by Seller at the time of the delivery of the first Airplane to Buyer and are attributable to such Spares or to the purchase thereof;

(3) an amount equal to interest at the rate of three per cent (3%) per annum on the average amount of the outstanding advance payments made by Seller applicable to such Spares. The average amount of the outstanding advance payments applicable to Spares shall be computed by considering the payments made or costs incurred as set forth in subparagraphs (1) and (2) of this paragraph 3(b) as outstanding from the respective dates such payments were made or such costs were incurred by Seller and until the delivery of the first Airplane to Buyer under this contract;

(4) any additional amount which, at the time of the delivery of the first Airplane to Buyer hereunder, Seller is committed to pay to suppliers of Spares.

(c) The purchase price of each Airplane and the purchase price of Spares shall each be paid by Buyer to Seller in sixty (60) equal consecutive monthly installments, together with interest on the unpaid balance at the rate of 3-3/4 per cent per annum. The first of such payments relating to each Airplane shall be made at the time of delivery of such Airplane, and the first of such payments relating to



Spares shall be made at the time of delivery of the Airplane. As to each Airplane, and as to Spares, the second and succeeding payments shall be made monthly on the first day of the months succeeding the month in which the first payment is required to be paid, until the whole of each such purchase price shall have been paid. All payments shall be made to the Seller at the Hughes Tool Company, Houston, Texas.

(d) In the event that the purchase price of the Airplanes differs from the amount computed at the time of the delivery thereof to Buyer hereunder or in the event that the aggregate net amount which Seller is required to pay for the Spares in a final accounting with the suppliers thereof differs from the amount used in computing the purchase price thereof pursuant to subparagraph 3(b), separate and independent adjustments will be made by payment from one party to the other of such difference. Similarly, Seller will reimburse Buyer for any interest paid by Buyer with respect to any portion of the purchase price of the Spares which is unpaid at the time of delivery of the first Airplane hereunder, to the extent and for the period that Seller has not earned such interest by having made payments to the suppliers.

4. Title to the Airplanes and Spares shall not pass to Buyer by delivery, but shall remain in Seller until such time as the purchase price shall have been paid in full and Buyer shall have paid to Seller all other sums then due and payable to Seller hereunder, whereupon absolute title to the Airplanes and Spares shall pass to Buyer.

5. Upon the happening of any one or more of the following events, namely: 5



DX290, page 6  
(Toolco-TWA Conditional Sale Contract-  
L-1049Gs, 6/6/56)

manner herein specified, or any monthly installment of the purchase price of the Airplane or Spruce and such default shall continue unremedied for five (5) days after written notice thereof shall have been delivered by Seller to Buyer; or

(b) default shall be made by the Buyer in the observance or performance by the Buyer of any other covenant or agreement contained herein, and such default shall continue unremedied for thirty (30) days after written notice thereof shall have been delivered by Seller to Buyer; or

(c) the Buyer shall become insolvent, or shall file a voluntary petition in bankruptcy, or shall file a voluntary petition or answer seeking or consenting to reorganization pursuant to or purporting to be pursuant to the Acts of Congress relating to bankruptcy or any other statute, state or Federal, for the relief of debtors, or shall be adjudicated a bankrupt, or shall make an assignment for the benefit of creditors, or shall consent to the appointment of a receiver or trustee of or for it or a substantial part of its property; or

(d) an order shall be entered pursuant to or purporting to be pursuant to the Acts of Congress relating to bankruptcy or any other statute, state or Federal, for the relief of debtors approving a petition seeking a reorganization of, or if an order shall be entered appointing a receiver or trustee of, or for any substantial part of the property of, or if a warrant of attachment shall be issued against any substantial part of the property of, the Buyer, and any such order is not dismissed or stayed within sixty (60) days from its entry or such attachment is not dismissed

(c) the Bonds

standing under that certain Indenture, dated as of December 1, 1954, between Buyer and Irving Trust Company, as Trustee, as said Indenture may have heretofore been or may hereafter be amended, shall be declared and become due and payable, prior to the date of maturity of such Bonds as set forth therein, upon the occurrence of any of the "events of default" described in said Indenture, as amended (and the Buyer hereby agrees to notify the Seller of any declaration of default forthwith upon the receipt thereof); or

(f) the Notes at the time issued and outstanding under that certain Chattel Mortgage, dated as of December 20, 1954, between Buyer and Irving Trust Company, as Trustee, as said Chattel Mortgage may have heretofore been or may hereafter be amended, shall be declared and become due and payable, prior to the date of maturity of such Notes as set forth therein, upon the occurrence of any of the "events of default" described in said Chattel Mortgage, as amended (and the Buyer hereby agrees to notify the Seller of any declaration of default forthwith upon the receipt thereof);

then Seller may at once (or at any later time) proceed to take possession of the Airplanes and Spares in any manner provided by law, or Seller may at its option, and Seller is hereby empowered to, with or without legal process, and with or without demand, enter upon the premises where the Airplanes or Spares may be and take possession thereof and remove the same. Seller may resell the Airplanes and Spares, so retaken, at public or private sale, with or without having such Airplanes and Spares at the place of sale, and upon such terms and in such manner

DX290, page 8  
(Toolco-TWA Conditional Sale Contract-  
L-1049Gs, 6/6/56)

to so sell the Airplanes and Spares shall be given by Seller to Buyer at least ten (10) days prior to the time of such sale. Seller may bid and purchase at any such public sale. From the proceeds of any such sale, Seller shall deduct all expenses for retaking, repairing, storing and selling the Airplanes and Spares, including any reasonable attorneys' fees incurred. The balance of such proceeds shall be applied to the payment of all sums owing to Seller under this agreement and any surplus of such proceeds remaining shall be paid to Buyer or to whoever may be lawfully entitled to receive the same. Buyer shall be under no obligation to Seller for any deficiency resulting from any such sale or to make any payments on account of the purchase price of any Airplane or Spares falling due after Seller has taken possession of such Airplane or Spares pursuant to this provision.

6. From and after delivery of the Airplanes and Spares to Buyer and until absolute title thereto is vested in Buyer or its nominee, or Seller repossesses the Airplanes,

(a) Buyer shall procure and maintain at its expense public liability, passenger liability and property damage insurance in such amounts and with such companies as shall be satisfactory to Seller, covering Seller's liability as holder of legal title to the Airplanes and Spares. The policies evidencing such insurance shall contain such provisions as shall be satisfactory to Seller and shall name Seller as assured.

(b) Buyer shall at its expense maintain all risk aircraft hull insurance in respect of the Airplanes in favor of Buyer and Seller, as their interests may appear, in such amounts and with such companies as shall be satis-

destroyed or damaged to such an

practical, such insurance shall be paid to the Seller to the extent of the unpaid balance of the purchase price of such Airplane together with any accrued and unpaid interest thereon, plus all other amounts then due to Seller hereunder. Upon such payment to the Seller of insurance to the extent of the unpaid balance of the purchase price of any Airplane, absolute title to the Airplane so damaged or to any parts of an Airplane so destroyed shall vest in Buyer and Seller shall deliver to Buyer such proper documents of title with respect thereto as Buyer may reasonably require. Buyer shall be under no obligation to make any payments on account of the purchase price of such Airplane falling due after such loss, destruction or damage. Any insurance proceeds in excess of the amount payable to the Seller, and any insurance proceeds payable as a result of damage not rendering repair impractical, shall be payable to Buyer or its designee.

7. Buyer may at any time pay to Seller the unpaid balance of the purchase price of the Airplanes and Spares or any part thereof, without premium or penalty.

8. Upon the payment to Seller of the balance of the purchase price of the Airplanes and Spares together with all other amounts owing to Seller hereunder, Seller shall deliver to Buyer at such place in the United States as Buyer may designate.

(a) a bill of sale duly vesting in Buyer the title to the Airplanes and Spares free and clear of all liens, claims, charges and encumbrances attaching subsequent to the delivery of the Airplanes and Spares to Seller and not arising



DX290, page 10  
(Toolco-TWA Conditional Sale Contract-  
L-1049Gs, 6/6/56)

and Spares by Buyer, and

(b) such other appropriate documents of title with respect thereto as Buyer may reasonably require.

9. In the event any sales tax or use tax is hereafter imposed upon or paid by Seller by reason of the sale or use of the Airplanes and Spares or the purchase thereof by Seller, then in addition to the sales price provided for in paragraph 3, Buyer shall pay to Seller the amount thereof, upon demand.

10. Buyer shall furnish Seller forthwith and from time to time thereafter at reasonable intervals, all such information concerning Buyer's financial condition, including balance sheets and forecasts of earnings, as is customarily furnished to a commercial bank holding or considering the acceptance of unsecured notes of a borrower.

11. The Buyer agrees that it will pay and discharge all taxes, assessments, governmental charges and all charges for keep, repairs, storage, maintenance or accessories, which if unpaid might become a lien, charge or encumbrance upon or against any of the Airplanes or Spares, and upon the failure of the Buyer so to do the Seller may make any such payment; provided, however, that nothing herein contained shall require the Buyer to pay such tax, assessment or charge so long as the Buyer shall in good faith contest the validity thereof and shall furnish the Seller such bond or indemnity as the Seller shall require, unless, in the judgment of the Seller, forfeiture is likely to result from any such failure to pay. Any sum or sums so paid by the Seller, together with interest thereon at the highest lawful contract rate, shall be and become a part of the sum which



(Toolco-TWA Conditional Sale Contract-  
L-1049Gs, 6/6/56)

Buyer to the Seller.

The Buyer will, upon written request from the Seller,

(a) reimburse the Seller for all filing or recording fees incurred in connection with filing or recording or refiling or re-recording this Contract and all supplements and additions hereto, if any;

(b) execute and deliver to the Seller all such further documents and instruments and do such further acts as may be necessary to perfect the rights of the Seller herein contemplated; and

(c) furnish to the Seller at reasonable intervals reports and certificates setting forth all the information necessary to inform the Seller as to the continued existence, location and condition of the Airplanes and Spares. The Seller shall also have the right to inspect the Airplanes and Spares at all times when the same are not in use and when such inspection can be had without undue inconvenience or expense to the Buyer.

12. Buyer agrees to maintain the Airplanes and Spares in good repair and working condition at its own expense, except any airplane lost, destroyed or so damaged that insurance with respect thereto is payable to the Seller pursuant to paragraph 6 hereof. Subject to the proper performance of such covenant, the Buyer may make repairs and replacements to the Airplanes and Spares and may substitute for engines, propellers and any other equipment installed in or attached to the Airplanes or Spares, engines, propellers or other equipment of substantially the same

DX290, page 12  
(Toolco-TWA Conditional Sale Contract-  
L-10490s, 6/6/56)

kind and value; provided, however, such engines, propellers, or equipment, and no replacement thereof, shall divest Seller of its superior title thereto, or render any such removed or replaced equipment subject to the lien or claim of any person other than Seller, UNLESS and UNTIL such equipment is replaced by equipment of substantially the same kind and value, the title to which, upon such equipment being installed in or attached to the Airplanes or Spares, may validly vest in Seller free and clear of the lien or claim of any other person, subject to the provisions of paragraph 14 hereof. In the case of any such permitted substitution, title to the substituted equipment shall immediately vest in Seller and become subject to the provisions of this Conditional Sale Contract and remain so vested and so subject unless and until substituted for in the manner hereinabove permitted; and title to the equipment substituted for shall vest in Buyer.

13. Until title to the Airplanes and Spares shall have passed to the Buyer hereunder, the Buyer shall have no right, power or authority to sell, transfer, assign, mortgage or encumber or in any other manner whatsoever dispose of the Airplanes and Spares or any part thereof (except as provided in paragraph 12 hereof) or any interest therein, and the Buyer hereby agrees that, except as permitted by paragraph 12 hereof, the Buyer will not (voluntarily or involuntarily) sell, transfer, mortgage, encumber or in any other manner whatsoever dispose of the Airplanes and Spares or any part thereof or any interest therein. Buyer agrees, except as provided herein, that the Airplanes and Spares will be used exclusively for its commercial air transport operations and related activities and that it

possessed by others. Buyer (Toolco-TWA Conditional Sale Contract-  
L-1049Gs. 6/6/56)  
planes and Spares by other airlines with which Buyer enters  
into interchange agreements provided that any such use by  
other airlines shall for the purposes of this agreement be  
considered to be use by the Buyer.

14. To the extent, if any, that there is a conflict between any of the provisions of this agreement and any of the provisions of the Indenture of Mortgage dated as of December 1, 1954 between the Buyer and Irving Trust Company, as Trustee, or of the Chattel Mortgage dated as of December 20, 1954 between the Buyer and Irving Trust Company, as Trustee, the provisions of said Indenture and said Chattel Mortgage shall prevail and the provisions of this agreement shall be deemed amended to the extent necessary to avoid such conflict. Seller recognizes the liens created by (a) Granting Clause VI of said Indenture and (b) Granting Clause III of said Chattel Mortgage as prior liens on the aircraft engines and on the propellers, appliances and spare parts relating to the Airplanes or Spares when and so long as they shall be installed in, attached to or incorporated in any of the aircraft or aircraft engines at any time subject to the lien of said Indenture or of said Chattel Mortgage, as the case may be.

Seller agrees that so long as all the Bonds issued under said Indenture at the time outstanding shall be held by the original purchaser thereof, (a) Seller will not repossess the Airplanes or Spares, in the event of a default by Buyer under this agreement, without affording such original purchaser reasonable notice of such default and a reasonable opportunity to remedy the same and (b) such

DX290, page 14

proceeding at any time till the (Toolco-TWA Conditional Sale Contract- L-1049Gs, 6/6/56) by paying to Seller the then remaining balance of the purchase price hereunder plus accrued interest.

Seller also agrees that in the event of a default by Buyer hereunder, the rights and remedies of Seller shall be limited to repossession of the Airplanes and Spares.

15. Before delivery of each Airplane to Buyer hereunder, Buyer will cause to be fastened thereon in a location reasonably adjacent to, and not less prominent than that of, the airworthiness certificate for such Airplane, a name plate no larger than four inches by seven inches (4" x 7") bearing the following legend:

"Hughes Tool Company holds legal title  
to this Airplane as Conditional Seller."

Buyer shall maintain such name plate in such location or in one of at least equal prominence and visibility at all times. Buyer may affix to the Airplanes Buyer's name, insignia or other legends customarily displayed by Buyer on its airplanes.

16. Buyer shall indemnify and hold harmless Seller, its agents and its employees from any and all liability for losses, expenses, damages, demands and claims in connection with or arising out of any death of, or injury or alleged injury or damage to, persons or property sustained, or alleged to have been sustained, in connection with or arising or alleged to have arisen out of Buyer's possession, use or operation of the Airplanes or Spares and Buyer agrees to handle any claim and defend any suit or action brought against Seller, its agents or its employees, or any of them, based on any such death, injury or damage, or alleged injury or damage, and to pay all damages, costs and expenses,



including attorneys' fees, (Toolco-TWA Conditional Sale Contract L-10490s, 6/6/56)  
resulting therefrom.

Buyer's liability to Seller under this paragraph 16 is conditioned upon Seller's promptly giving notice to Buyer of institution of such suit or action or of receipt of such claim or demand. Buyer shall have the option at any time to conduct negotiations with the party or parties making any such claim or demand, and may intervene in any such suit or action. Whether or not Buyer intervenes in any such suit or action, it shall be entitled to assume, conduct or control the defense thereof, and Seller shall not settle or discharge any such claim, demand, suit, action or judgment without prior notice to and the consent of Buyer.

IN WITNESS WHEREOF, the parties hereto have executed and delivered this agreement as of the day and year first above written.

HUGHES TOOL COMPANY

Attest:

By Raymond W. [Signature]  
Vice President

[Signature]  
Assistant Secretary

TRANS WORLD AIRLINES, INC.

Attest:

By T. L. Weller  
Vice President

[Signature]  
Assistant Secretary